eHealth Services Research Group (eHSRG)

University of Tasmania

A Structured Evidence-Based Literature Review on Discharge, Referral and Admission

September 2010

Australian Commission on Safety and Quality in Health Care (ACSQHC)

and

New South Wales Health

August 2010.

Authors listed alphabetically:

Mr. Brendan Churchill,

Dr. Elizabeth Cummings,

Mrs. Erin Roehrer,

Mr. Chris Showell,

Ms. Brooke Turner

Associate Professor Paul Turner

Ms. Ming-Chao Wong,

Dr. Kwang Chien Yee,

Suggested citation:

Cummings, E., Showell, C., Roehrer, E., Churchill, B., Turner, B., Yee, K.C., Wong, M.C., Turner, P. (2010) Discharge, Referral and Admission: A Structured Evidence-based Literature Review, ***eHealth Services Research Group***, University of Tasmania, Australia (on behalf of the Australian Commission on Safety and Quality in Health Care, and the NSW Department of Health).

© This work is copyright. It may be reproduced in whole or in part for study training purposes subject to the inclusion of an acknowledgement of the source. It may not be reproduced for commercial usage or sale. Reproduction for purposes other than those indicated above, requires written permission from the Australian Commission on Safety and Quality in Health Care and NSW Department of Health.

Executive Summary

This document provides three structured evidence-based literature reviews on the benefits, enablers, barriers and challenges related to the processes of discharge, referral and admission covering Australian and International published works. The reviews are presented in a manner that includes summaries of papers, reviews the strength of evidence and synthesizes major themes and issues. These reviews are specifically focused on discharge, referral and admission processes in the healthcare sector, particularly concentrating on literature published in the last ten years and covering both quantitative and qualitative research. While the primary source of materials on discharge, referral and admission processes are from within the Medline collection, the review also includes materials in journals outside that collection as well as other published material on the topic, including non-peer-reviewed papers, opinions and published reports.

The reviews are focused on identifying and analysing available literature on the processes of discharge, referral and admission in relation to the following six key questions:

1. What is the current practice to date along with barriers to, and facilitators of success, relating to:
    - Safety (including high risk scenarios);
    - Efficiency (costs and benefits);
    - Sustainability and quality (effectiveness).
2. What high risk scenarios can be identified from the literature?
3. What interventions in this area were most effective?
4. What were the critical success factors or limitations of their effectiveness?
5. Is there evidence of sustainability and transferability for these interventions?
6. What are the gaps in evidence is this area?

In relation to literature on discharge processes, the review also aims to provide critical appraisals of the evidence in relation to a number of more specific questions including those related to discharge summary receipt experiences; impact on medication management, on patient outcomes, and financial effectiveness of different types of discharge processes; and, the role of communication frameworks.

Although the scope of the document as a whole aims to review literature on the three processes of discharge, referral and admission, it was recognised from the outset that a greater volume of literature would be available relating to discharge and that this was likely to become the major focus for the document.

Following an introduction, the approach utilised in the identification and analysis of literature relevant to addressing these questions is presented. **The document is then structured into four parts**. The first three parts present free-standing structured reviews of literature on the processes of discharge, referral and admission respectively. A brief fourth part of the document adopts a continuity of care perspective, and highlights some of the important inter-relationships that are marginalised, excluded or ignored by the literature specifically focused on discharge, referral and admission processes.

Whilst the document presents three free-standing structured literature reviews, the eHealth Services Research Group (eHSRG) encourage readers to consider the inter-relationships between them. Part four of this document aims to support these considerations by maintaining an integrated care perspective. More specifically, part four aims to briefly highlight the limitations, challenges and dangers of simply focusing on the evidence, or gaps in evidence identified in the individual reviews presented in Parts 1, 2 and 3.

In conducting these reviews, the team grappled with the definitional challenges presented by each of the three terms. Aside from the inherent ambiguity of each of the terms per se, there is also a lack of any universally recognised definition for the processes within the healthcare sector to which these terms refer. For example, 'admission' is routinely used to describe the intake of a patient into a hospital, an emergency department, to intensive care, to a community nursing round, a clinic list, a GP practice, or a residential aged care facility. It can however also refer to a confession (in a medico-legal sense), or the acceptance of a healthcare professional into the membership of a learned college. In this regard, the following broad definitions were utilised:

- **Discharge:** the processes, tools and techniques by which an episode of treatment and/or care to a patient is formally concluded by a health professional, health provider organisation or individual.
- **Referral:** the processes, tools and techniques by which a patient (and the provision of all or part of their care) is transferred between health professionals and health provider organisations to facilitate access to services and/or advice that the referring source is unable or unwilling to provide.
- **Admission:** the processes, tools and techniques by which an episode of care is formally commenced by a health professional or health provider organisation involving their acceptance of responsibility for a patient and/or their treatment and care.

These reviews also identified marked differences both within and between different countries, medical jurisdictions and amongst different health professions in how these terms were used to describe complex patient and information flows through the health system. For example, in Australia same day surgery is usually classified as 'admitted care' whereas in many other countries day surgery is considered to be 'non-admitted care'. Similarly, referral in an Australian context is used to describe both a process of transferring the care of a patient from one provider to another, and the formal document required as a part of cost re-imbursement by Medicare. Again, this is not the same in other countries. For discharge, there are also differences in how its boundaries are determined. For example, in some European countries, a re-admission within 7 days of discharge is sometimes classified as a continuation of the first episode of care (for funding and payment purposes) whereas in Australia health funds usually do not consider this to be the case.

These definitional and conceptual challenges were mitigated in the search strategy by deploying broad definitions for all three terms to ensure a comprehensive coverage of the literature. These broad definitions were also complemented by the identification of a detailed list of key scenarios involving discharge, referral and admission processes respectively and the use of an extensive range of related search terms (e.g. re-admission; patient separation; eDischarge, transfer of care).

Importantly, across all three structured reviews the approach utilised has prioritised research literature, reports and other materials concerned with the processes, tools and techniques as well as experiences and insights related to the transfer of patients, information about them and/or their care from one individual or team of health professionals in one setting to those in another health organisation or setting **(i.e. inter-organisational processes rather than just intra-organisational processes).**

A consequence of this approach is that a very high proportion of the papers identified were either not relevant or made only passing reference to discharge, referral or admission processes, tools or techniques.

Following an examination of the key questions posed for the literature reviews on discharge, referrals and admissions it was determined that it was appropriate to structure the analysis and discussion of the literature on the benefits, enablers, barriers and challenges of these processes into the following three main sections:

- High Risk Scenarios and Patient Safety;
- Current Practices, Interventions, Critical Success Factors and Effectiveness; and

- Evidence Gaps.

In each section, key issues are identified and relevant peer-reviewed literature reviewed and discussed. Following those sections, each review provides summary tables of all materials identified as relevant for the sections, including non-peer reviewed materials, published reports and opinions. To assist in assessing the nature and type of literature reviewed including the strength of evidence and level of sustainability and transferability of the interventions, entries in the tables are grouped into one of 5 categories covering the range of literature identified. Thus each review has up to 5 summary tables for each section, covering materials from category 1 and 2 (multi- or single- site evidence-based interventions) through category 3 (pre-intervention studies) to categories 4 and 5 (published reviews, opinions and reports). Part four of the report then briefly considers some of the inter-relationships between these reviews and adopts a continuity of care perspective that emphasizes a holistic approach to health care safety and quality process improvement. The document concludes with a comprehensive bibliography of all relevant materials identified during the conduct of this review as well as any other references utilised.

At the broadest level this literature highlights a number of key considerations for quality and safety initiatives seeking to improve discharge, referral and admission processes:

- The sheer volume of literature available on discharge in comparison to literature available on admission or referral should not, in and of itself, be considered as any indicator of a differential level of risk, benefit or importance related to this process;
- There is a dominant 'hospital-centric' paradigm which permeates the orientation, focus and volume of evidence available on these three processes that needs to be carefully considered in assessing improvement initiatives. Indeed, even defining gaps in evidence is influenced by how this paradigm defines the boundaries of contemporary debates on these topics;
- The requirements of this type of review impose an artificial separation between the processes of discharge, referral and admission that is not replicated in practice. Discharge of a patient by one care provider regularly results in admission by another, and these complementary activities are frequently accompanied by some form of referral. Ensuring safety and quality of patient care across multiple settings means that these processes should, wherever possible, not be treated in isolation;
- Despite the volume of literature available, the numbers of high quality evidence based interventions that display a high level of potential for transferability remains relatively low across all three processes.

From a continuity of care perspective, this document has also highlighted:

- The importance for health professionals and health provider organisations to recognize that admission, referral and discharge should not be treated merely as singular 'one-off' events in the delivery of patient care. Rather they should be acknowledged as processes that extend beyond the conventional boundaries of any particular health organisation, individual clinic or ward and thus require a conscious effort to ensure that accurate, legible and relevant information is exchanged with the next health provider and where possible the patient/carer to enhance the quality and safety of treatment and care delivered.
- Health professionals and health provider organisations need support to facilitate the change management of internal processes so that they are capable of producing and distributing accurate, legible and relevant information beyond their conventional disciplinary and organisational boundaries. Related to this is the need to ensure that when information is sent or received health professionals take on the responsibility to verify, validate, confirm receipt, communicate and act upon it as appropriate to optimize the safety and quality of care.
- It is acknowledged that the literature provides very limited evidence and/or guidance on the necessary educational and training content and processes required to support

health professionals to be able to enhance the quality and safety of admission, referral and discharge processes. This is an area that will require additional effort by health provider organisations and applied research by health agencies, universities and research institutes.

- eHealth continues to hold considerable promise and there is some evidence to indicate its strong potential to support integrated care, and support the patient and information transfers that occur during admission, referral and discharge. However, eHealth systems also raise numerous sociotechnical, clinical and legal challenges that are apparent within the literature in cases where these solutions meet with mixed success, or fail to generate their anticipated benefits. Critically, these tools must be seen as mechanisms to support, not replace good admission, referral and discharge communication and patient safety must be an embedded property of the entire system (Harrison et al, 2007).
- Assuring the accuracy of medications during transitions of care and ensuring clear, legible communication of current and changed medications emerges as a significant safety risk in all three of the reviews above. It is also evident that there is a tendency in the literature to ignore or marginalize the potential to positively engage with patients to educate them on their medications and involve them directly in the processes of medication management as part of strategies to mitigate this risk.
- As real progress is made to engage with and involve patients as co-participants in the management of their own care a key issue that needs to be addressed (if further risk factors are not to arise), is the challenge of improving health literacy. A basic level of health literacy is at the core of the health system being able to meaningfully engage patients/carers in their own care. In particular, for patients with complex conditions there appears to be a strong case for the development of a comprehensive approach to this issue.

Significantly, these reviews do provide ample evidence that there are now large numbers of studies (particularly on discharge) that have investigated various aspects of discharge, referral and admission and improved understanding of their complex and dynamic natures. These studies clearly confirm **these processes are all potentially high risk scenarios for patient safety with dangers of discontinuity of care, medical and medication adverse events including avoidable re-admissions and inefficient health care practices** in managing patient flow within the community, into hospital and during the return of patients to community settings.

The key themes identified in the three respective literature reviews are summarised below across each of the three sections used to structure results i.e. (1) High Risk Scenarios and Patient Safety; (2) Current Practices, Interventions, Critical Success Factors and Effectiveness; and, (3) Evidence Gaps.

DISCHARGE

High Risk Scenarios and Patient Safety in Discharge

The major evidence based themes identified in the literature relating to high risk scenarios and patient safety around discharge processes can be summarised as follows:

- **Medication management:** the literature provides evidence of risks which are associated with poor management of medications around the time of patient discharge, and points to a significantly increased risk of adverse drug events (see Section 3.2.1, p. 33)
- **Communication about medication:** the literature points to risks which are associated with poor communication about medications at the time of patient discharge (from hospital or from residential aged care). The risks can significantly increase the likelihood of adverse drug events (see Section 3.2.2, p. 34).

- **Problems with discharge communication:** the literature points to risks which occur with poor communication at the time of discharge. The transfer of a patient to a different care setting should be accompanied by prompt, relevant and accurate communication about the episode, including details of active clinical problems and plans for ongoing management (see Section 3.2.3, p. 36).
- **Readmission**: the literature provides evidence of interventions which can reduce the risk of unplanned readmissions (see Section 3.2.4, p. 37).
- **Patient characteristics:** the literature points to an increase in risks associated with discharge for patients who are elderly, or who have diminished literacy (see Section 3.2.5, p. 37).

Current Practices, Interventions, Critical Success Factors and Effectiveness in Discharge:

The major evidence based themes identified in the literature relating to Current Practices, Interventions, Critical Success Factors and Effectiveness in discharge can be summarised as follows:

- **Discharge summary requirements and expectations:** the literature points to differences between GPs and hospital physicians over the preferred format of discharge summaries (see Section 3.3.1, p. 39).
- **Evaluation of discharge performance:** the literature points to poor communication and follow-up at the time of patient discharge. These deficits increase the risk of adverse events (see Section 3.3.2, p. 39).
- **Evaluation of discharge summaries:** the literature points to long-standing issues with the quality of discharge summaries; the four key issues impacting the use and performance of discharge summaries are: quality; timeliness of delivery and receipt; accuracy; and completeness (see Section 3.3.3, p. 40).
- **Effectiveness of discharge summary options:** literature points to key problems associated with the use of either electronic or handwritten discharge summaries (see Section 3.3.4, p. 43).
- **eDischarge:** the literature provides conflicting evidence about the ability of standardised electronic discharge summaries to improve the delivery, receipt and quality of discharge summaries from hospitals general practitioners and primary care physicians (see Section 3.3.5, p. 43).
- **Impact on patient outcomes:** the literature provides mixed evidence about the clinical impact of interventions to improve continuity of care (see Section 3.3.6, p. 44).
- **Rapid communication:** the literature points to benefits from the use of brief prompt discharge summaries to communicate patient information between hospitals and general practitioners (see Section 3.3.7, p. 45).
- **Nursing discharge:** the literature points to uncertainty about the role of nurses in the discharge planning process; training and professional development may be needed to further develop and enhance this role (see Section 3.3.8, p. 45).
- **Discharge planning:** the literature provides evidence of the benefits of discharge planning on patients' health outcomes, particularly discharge planning undertaken by multidisciplinary care coordination teams. The literature also points to the common issues and challenges in carrying out effective discharge planning, such as the communication barriers between internal and external health care providers (see Section 3.3.9, p. 46).
- **Discharge from emergency departments:** the literature points to a disparity between the views of emergency department healthcare providers and community physicians about the flow of information at discharge. The literature also points to

potential benefits if patients are discharged directly from emergency department triage (see Section 3.3.10, p. 47).

- **Medication reports:** the literature provides evidence of better patient outcomes from the use of structured communication about medications, such as medication checklists and integrated discharge prescription forms, at the time of discharge (see Section 3.3.11, p. 47).
- **Post-hospital support:** the literature provides evidence that support programs and strategies such as community pharmacist involvement and an early discharge rehabilitation service can improve patient outcomes after discharge, and reduce unplanned readmissions (see Section 3.3.12, p. 48).
- **Enhanced communication:** the literature points to a range of practices which can improve patient outcomes after discharge, including reviews of medical records and audits of discharge summaries. Literature also points to the feasibility of implementing improved discharge summary formats for particular groups of patients (see Section 3.3.13, p. 49).
- **Care transition measures:** the literature points to a number of tools which can use data from medical records and discharge summaries to measure the quality of care transitions and healthcare outcomes for patients moving between providers (see Section 3.3.14, p. 50).
- **Data:** the literature points to a number of options for using data from medical records and electronic discharge summaries to assess discharge performance, and improve the quality of discharge planning and patient outcomes after discharge (see Section 3.3.15, p. 50).

Evidence Gaps in Discharge

The major evidence based themes identified in the literature relating to evidence gaps in discharge processes can be summarised as follows:

- **Other communication:** the evidence points to an overwhelming interest in use of the discharge summary as a communication tool for patient discharge; options such as telephone calls and email between clinicians receive scant attention (see Section 3.4.1, p. 51).
- **Patient knowledge:** there is some evidence that enhancing the patient's knowledge and understanding of their condition and treatment can help to ensure safe transition at the end of a hospital stay. However, patient engagement is usually omitted from evaluations of discharge quality (see Section 3.4.2, p. 52).

REFERRAL

High Risk Scenarios and Patient Safety in Referral

The major evidence based themes identified in the literature relating to high risk scenarios and patient safety around referral processes can be summarised as follows:

- **Delayed and late referrals:** the literature provides evidence of the risks associated with the timing of referrals within the palliative care environment and the impact delayed or late referrals may have on the quality of care. The literature also points to reducing patient risk through the development of referral criteria within palliative care, and ensuring the timing of the referral is not dependant on the age of the patients or type of diseases present (see Section 4.2.1, p. 106).
- **Referral failures:** the literature points to the risks for patients in the GP to outpatient hospital clinic referral process. The literature also points to the impact of minimum delays to appointments and improved communication between hospitals and general

practitioners and how this would allow general practitioners to make appropriate referrals and reduce the risk of non-compliance. The literature also acknowledges that the referral process is a complex one that often fails (see Section 4.2.2, p. 106).

- **Communication content:** the literature points to risks associated with the potential increase of adverse events experienced by older patients as a result of missing information. Additionally, the literature points to a disagreement between primary and secondary care givers on what information within the referral letter is essential information (see Section 4.2.3, p. 106).

Current Practices, Interventions, Critical Success Factors and Effectiveness in Referral;

The major evidence based themes identified in the literature relating to Current Practices, Interventions, Critical Success Factors and Effectiveness in Referral can be summarised as follows:

- **Quality of referrals:** the literature points to the examination of the quality of information contained in referral communication, largely referral letters. The literature also points to a potential information gap between specialists and GPs within the provision of prior investigations pre referral and the patients' current medication information. Additionally, the literature points to the fact that information exchanged between specialists and GPs is frequently not acted upon by either party (see Section 4.3.1, p. 108).
- **Content of referrals:** the literature points to the potential benefits for the referral quality and communication processes through the development of a web-based practice improvement tool. Additionally, the literature suggests the development of a minimum basis for referral communication developed by medical peers. This referral format has been identified as potentially improving the continuity of information flow between primary and secondary care (see Section 4.3.2, p. 109).
- **GP to Specialist communication practices:** the literature points to the lack of method in communication between GPs and specialists. This may have a detrimental effect on communication between primary and secondary care. Additionally, the literature highlights the need for understanding the impact of referral behaviour and patterns involving GPs to specialist on waiting times. Reasons for referral trends were attributed to specialist reputation and perceived shorter waiting times (see Section 4.3.3, p. 109).
- **Barriers and limitations:** the literature points to the blurring of professional boundaries as nurse practitioners commence referring patients to specialist care. The literature identifies a number of concerns or barriers that may inhibit the efficiency of the nurse practitioner referral process. Additionally, the literature suggests the need for a sole point of communication to facilitate the referral and transfer of older patients between community and hospital care. The literature also points to the concerns of communication gaps that may exist between the referring GP and the emergency department of a hospital. The breakdown of the communication process is highlighted as a barrier to effective co-ordinated care (see Section 4.3.4, p. 109).
- **Effect on waiting times:** the literature points to the impact the quality and content of a referral letter has upon waiting times and the prioritisation of service provision between different grades of specialist (see Section 4.3.5, p. 110).
- **Referral follow-up:** the literature points to the fact that referral letters from GPs to the accident and emergency department are frequently missing from the medical record (see Section 4.3.6, p. 110).
- **Financial impacts:** the literature points to the financial impact a referred or transferred (between facilities) patient has within a hospital setting (see Section 4.3.7, p.110).

- **eReferrals:** the literature provides evidence that eReferrals can increase patient, GP and specialist satisfaction. Additionally, the literature points to the fact that for successful uptake of eReferrals to occur all stakeholders within the eReferral process need to have their priorities well managed (see Section 4.3.8, p. 111).
- **Resource allocation:** the literature provides evidence on the effectiveness of in-house referral within a general practice before referral to a specialist. The use of in-house referrals has some positive outcomes for both health practitioners and patients. The literature also points to the variation in referral allocation between locum and regular GPs. Additionally the literature suggests there are benefits from improving referral access for disadvantaged rural women and children. The literature also provides evidence of the need for education provision to improve the understanding of referral activity and how health professionals interact with each other in the referral process (see Section 4.3.9, p. 111).
- **Telephone triage:** the literature provides evidence on the effect a reorganisation of an out-of-hours general practice. The biggest changes were in a mandatory telephone triage staffed by GPs and the replacement of small rota systems with county-based health centres. The evidence provided within the literature found the mean number of contacts with casualty wards rose significantly during the whole (see Section 4.3.10, p. 112).
- **Referral tracking:** the literature suggests the introduction of referral management centres to assist with the risk management, appropriateness and analysis of referral appropriateness and volume. The literature additionally suggests the change of legal responsibility when the referrals are accepted by the referral management centres (see Section 4.3.11, p. 112).
- **Referral appropriateness:** the literature provides evidence about the processes of care at the interface between primary and secondary care. The literature provides an analysis of the patterns and processes of referral to outpatients departments complemented by the views of patients, their GPs and specialists. Additionally the literature points to the use of a health practitioners experience and knowledge within the palliative care environment (see Section 4.3.12, p. 113).
- **Structured communication:** the literature provides evidence on the impact of a structured referral form for GP to emergency department (ED) communication. This evidence demonstrates that improving communication between GPs and EDs is difficult and may require a systematic change within both general practice and the hospital (see Section 4.3.13, p. 113).
- **Rationing referrals:** the literature discusses the concept of referral control and investigates the appropriateness of referrals between GPs and hospital doctors (see Section 4.3.14, p. 113).

Evidence Gaps in Referral

The major evidence based themes identified in the literature relating to evidence gaps in discharge processes can be summarised as follows:

- **eReferral evaluation:** the literature suggests there is limited research into evaluation of the use of electronic tools for referrals between different healthcare organisations apart from GP to specialist (see Section 4.4.1, p. 114).
- **Legal and ethical aspects:** the literature suggests the need for further exploration of the referral process from an Australian perspective, including the reasons for referral. The literature identified that the process is complex and there are underlying legal and ethical responsibilities that must be considered (see Section 4.4.2, p. 114).
- **Including patients in the referral process:** the literature points to the impact the provision of copies of referral information for patients has on both patients and the health care system. The literature indicates greater information gaps in the history of patients referred to an emergency department than those not referred. The literature

has identified that this is an area that needs further investigation (see Section 4.4.3, p. 114).

ADMISSION

High Risk Scenarios and Patient Safety

The major evidence based themes identified in the literature relating to high risk scenarios and patient safety around admission processes can be summarised as follows:

- **Medication communication:** the literature points to the complexity and risks of medication transfers particularly in relation to patients with multiple hospital admissions. The literature identifies that there are multiple information transitions present in the transition of care. The literature also shows the importance of accurate medication information for the treatment of medically complex patients to reduce the potential for errors (see Section 5.2.1, p. 149).
- **Medication-related admission:** the literature points to the fact that medication related admissions for older patients are common and may be preventable. Typically older patients have complex medication orders which may increase the risk of adverse events if full and accurate information is not available at admission. The literature also acknowledges that the risk of adverse events is similar irrespective of prescribing, monitoring or patient adherence practice (see Section 5.2.2, p. 150).
- **Pharmacist enhanced admission:** the literature provides evidence that using clinical pharmacists to review medications at the time of admission and discharge can reduce the risk of re-admission due medication errors. Additionally it notes that exploration of the risk of adverse events and medication history needs to consider the change of treatment during a hospital episode of care (see Section 5.2.3, p. 150).
- **Inappropriate admission:** the literature provides evidence that there are a large number of unnecessary or inappropriate admissions for older persons, particularly people with dementia. The literature highlights then importance of education for families and carers to reduce the risk of inappropriate admission. Additionally, the literature points to the importance of conducting advance care directive conversations as part of the admission process (see Section 5.2.4, p. 151).
- **Adverse events:** the literature points to patient safety events as a potential cause for the increasing numbers of readmissions. The literature suggests a combination of hospital administration data and clinical information is required to combat this risk. The literature also points to the fact that a large number of adverse events are preventable. The literature suggests that drug errors and poor clinical management, along with communications problems may increase the risk of patient safety events (see Section 5.2.5, p. 151).
- **Inter-hospital transfer:** the literature points to the ability to identify and categorise vulnerabilities in the transfer of patients from one institution to another for admission. The literature discusses the potential of using a systems based intervention to address communication; environment; workload; information technology; patient flow; and assignment of responsibilities (see Section 5.2.6, p. 152).
- **Patient Identification:** the literature points to the safety implications of patient misidentification upon the patient journey. Misidentification may be due to clinical information mismatch through the processes of identifying patients before treatment, administering of medication and non-staff initiated events (see Section 5.2.7, p. 152).
- **Unplanned admission:** the literature points to the potential that forecasting medical outliers may overcome threats to increase waiting lists. The literature highlights that adequate planning is needed to assist in the reductions of unplanned admissions and the risks associated with those admissions (see Section 5.2.8, p. 152).

- **Prior admission history:** the literature points to the potential high risk that exists for older patients who experience multiple admissions within a specific time period. The literature highlights that poor communication within the admissions period may contribute to a lack of care co-ordination (see Section 5.2.8, p.153).

Current Practices, Interventions, Critical Success Factors and Effectiveness in Admission;

The major evidence based themes identified in the literature relating to Current Practices, Interventions, Critical Success Factors and Effectiveness in Admission can be summarised as follows:

- **Readmission rates:** the literature points to the potential association between incomplete patient management and evaluation and readmissions. Additionally the literature discusses that each facility may have different admission criteria which can influence readmission rates. The literature also highlights the ability to use one particular hospital's readmission rate as an indicator for all hospital readmission rates. The literature highlights that readmissions may be more frequent within older patients and those who experienced an end of week discharge (see Section 5.3.1, p. 154).
- **Readmission factors:** the literature points to the acknowledgment of readmissions being used as a quality of care indicator and that the elimination of all readmissions may not be possible. The concept of a readmissions chain is discussed, allowing for a more holistic presentation of the patient admissions history. The literature also points to patients potentially experiencing a higher level of readmissions when they have been discharged home and there is a lack of communication between primary and secondary care (see Section 5.3.2, p. 155).
- **Communication issues:** the literature points to the existence of multiple pathways for the communication of medical information. The exploration of the pathways in the literature illustrated some inadequate information transfer. Additionally, communication issues presented staff with increased service burdens not normally experienced. The literature highlights that physicians are not always aware of a patient's readmission. When communication of readmission does occur it may result in the exchange of important information. The literature points to the potential for poor communication to be present during the medical assessment process. The literature highlights that there may be different priorities in place within facilities creating further communication issues. The literature additionally highlights the potential risks that are present when a patient has low levels of health literacy (see Section 5.3.3, p. 155).
- **Emergency department utilisation:** the literature points to the advantages of the use of central patient health information upon presentation to the emergency department. The literature suggested that patient health information when provided was not utilised effectively. Additionally, the literature points to the fact that people use the emergency department as a service complement, accessing the department outside of business hours when 'normal' care was unavailable. The literature points to the appropriate use of emergency department transfer from residential aged care facilities (see Section 5.3.4, p. 156).
- **Capacity planning:** the literature points to the presentation of non-emergency patients to the emergency department. An intermediate level of care is suggested to meet the unique needs of this patient group. Additionally, the literature highlights the subjective nature of a pre-assessment process prior to the residential aged care facility placement. The literature suggests the use of a transfer framework in order to improve capacity planning. The literature also points to the existence of a relationship between the distance of a hospital and referral rates from general practitioners. The literature found that overall day-bed-use was higher for those GPs closer to the hospital (see Section 5.3.5, p. 157).
- **Preventable admissions:** the literature points to exploration of a long term quality of care indicator looking at the rate of hospitalisations due to ambulatory care sensitive conditions (ACSCs) (see Section 5.3.6, p. 157).

- **Pre-existing conditions:** the literature points to the fact that use of a 'present on admission' (POA) indicator frequently results in changes in the quality ranking of hospitals classified as high or low quality. The literature highlights that through the use of the POA data a significant number of hospitals were reclassified from high quality to moderate/low quality. The literature additionally highlights the importance of knowledge of, and potential impact of pre-existing conditions (see Section 5.3.7, p. 158).
- **Prediction of risk of readmission:** the literature points to the introduction of an index for quantifying risk of death or unplanned readmission. Through this index the literature identifies that readmissions are costly and the use of this tool may assist in the reduction of cost and risk (see Section 5.3.8, p. 158).
- **Patient safety controls:** the literature points to the impact the use of 'present on admission' data to patient safety indicators and the impact the combination of the information has on patient data. The literature points to the fact that the combination of these data may reduce the number of patient safety events. Additionally, the literature highlights that the use of POA data may assist with the improvement of patient safety controls. The present on admission additionally may assist with the identification of complications (see Section 5.3.9, p. 158).
- **Admission avoidance:** the literature points to the fact that current processes can allow for the avoidance of traditional acute admission, or substitution of acute admission (see Section 5.3.10, p. 159).
- **Hospital to residential aged care facility:** the literature provides evidence on the increased events of residential aged care facility transfer from an inpatient hospitalisation for older persons. The evidence contains an examination of patient admission to residential aged care facility from a hospital setting and the processes involved. The literature highlights the barriers that may be introduced through the fragmentation of care between hospitals and residential aged care facilities (see Section 5.3.11, p. 159).
- **Admission reduction:** the literature suggests that pharmacist-led medication reviews may slightly decrease numbers of drugs prescribed within a hospital admission of an older patient. The review concluded that pharmacist-led medication review interventions do not have any effect on reducing mortality or hospital admission in older people, and cannot be assumed to provide substantial clinical benefit (see Section 5.3.12, p. 159).

Evidence Gaps in Admission

The major evidence based themes identified in the literature relating to evidence gaps in admission processes can be summarised as follows:

- **Admission trends**: the literature points to the need to further explore trends relating to residential aged care facility admission and the risks associated with higher dependency patients (see Section 5.4.1, p. 160).
- **Cost effectiveness:** the literature points to an examination of clinical information sharing between a hospital and two external emergency departments in order to improve cost utilisation. Within the literature there was found to be a decrease in the cost of care at one of the participating hospitals (see Section 5.4.2, p. 160).
- **Electronic admission:** the literature points to the need to further assess the effect of an electronic surgical booking service on patient waiting times and attendance rates. The literature found that there was no significant difference in the time from referral to admission in clinic between the intervention and control groups (see Section 5.4.3, p. 161).
- **Legal and ethical aspects:** the literature points to an exploration of a quality improvement program targeted at admission process and the expertise of project team members within a compulsory admissions process. The literature identified that

there are legal and ethical imperatives within the admission process but there is a need to further clarify these issues (see Section 5.4.4, p. 161).

Concluding Remarks

This literature review was prepared for the primary use of the Australian Commission on Safety and Quality in Health Care and the New South Wales Department of Health. It is however anticipated, that it will also be useful for other health care improvement professionals and researchers in this field in Australia and Internationally. This review aims to make a contribution to help inform future work in the area of transfers between hospital and the community as well as potentially between community providers.

Despite the thoroughness of the search strategy, and the care exercised during the review process the eHSRG acknowledge that (given the volume of literature identified, filtered and selected) it is possible that there will be a small number of relevant articles that have not been included in the review.

This literature review was conducted in a period of 10 weeks during June, July and August 2010.

Table of Contents

Executive Summary 3
Table of Contents 15
1. INTRODUCTION 20
1.1. Background: Conceptual Considerations 21
2. METHODOLOGY 25
2.1. Scope 25
2.2. Search Strategy 26
2.3. Assessment, Categorisation and Presentation 27
3. PART 1: A STRUCTURED EVIDENCE-BASED LITERATURE REVIEW ON DISCHARGE 29
3.1. Introduction 29
3.2. High Risk Scenarios and Patient Safety in Discharge 33
3.2.1 Medication management: 33
3.2.2 Communication about medication 34
3.2.3 Problems with discharge communication 36
3.2.4 Readmission: 37
3.2.5 Patient characteristics 37
3.3. Current Practices, Interventions, Critical Success Factors and Effectiveness in Discharge 37
3.3.1 Discharge summary requirements and expectations 39
3.3.2 Evaluation of discharge performance 39
3.3.3 Evaluation of discharge summaries 40
3.3.4 Effectiveness of discharge summary options 43
3.3.5 eDischarge 43
3.3.6 Impact on patient outcomes 44
3.3.7 Rapid communication 45
3.3.8 Nursing discharge 45
3.3.9 Discharge planning 46
3.3.10 Discharge from emergency departments 47
3.3.11 Medication reports 47
3.3.12 Post-hospital support 48
3.3.13 Enhanced communication 49
3.3.14 Care transition measures 50
3.3.15 Data 50
3.4. Evidence Gaps in Discharge 51

3.4.1 Other communication 51
3.4.2 Patient knowledge 52
3.5 eHealth Services Research Group Commentary 52
3.6. Summary Tables on Discharge 55
3.6.1 Discharge - High Risk Scenarios and Patient Safety Tables 55
Table 1: High Risk Scenarios and Patient Safety - Category 1 55
Table 2: High Risk Scenarios and Patient Safety - Category 2 60
Table 3: High Risk Scenarios and Patient Safety - Category 3 60
Table 4: High Risk Scenarios and Patient Safety - Category 4 67
Table 5: High Risk Scenarios and Patient Safety - Category 5 68
3.6.2 Discharge - Current Practices, Interventions, Critical Success Factors and Effectiveness Tables 69
Table 6: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1 69
Table 7: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 75
Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 79
Table 9: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 95
Table 10: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 5 99
3.6.3 Discharge - Evidence Gaps Tables 100
Table 11: Evidence Gaps - Category 1 100
Table 12: Evidence Gaps - Category 2 101
Table 13: Evidence Gaps - Category 3 101
Table 14: Evidence Gaps - Category 4 102
Table 15: Evidence Gaps - Category 5 102
4. Part 2: A STRUCTURED EVIDENCE-BASED LITERATURE REVIEW ON REFERRAL 103
4.1. Introduction 103
4.2. High Risk Scenarios and Patient Safety in Referral 105
4.2.1 Delayed and late referrals 106
4.2.2 Referral failures 106
4.2.3 Communication content 106
4.3. Current Practices, Interventions, Critical Success Factors and Effectiveness in Referral 107
4.3.1 Quality of referrals 108
4.3.2 Content of referrals 109
4.3.3 GP to Specialist communication practices 109
4.3.4 Barriers and limitations 109
4.3.5 Effect on waiting times 110
4.3.6 Referral follow-up 110

4.3.7 Financial impact 110
4.3.8 eReferrals 111
4.3.9 Resource allocation 111
4.3.10 Telephone triage 112
4.3.11 Referral tracking 112
4.3.12 Referral appropriateness 113
4.3.13 Structured communication 113
4.3.14 Rationing referrals 113
4.4. Evidence Gaps in Referral 113
4.4.1 eReferral evaluation 114
4.4.2 Legal and ethical aspects 114
4.4.3 Including patients in the referral process 114
4.5 eHealth Services Research Group Commentary 115
4.6. Summary Tables on Referral 117
4.6.1 Referral - High Risk Scenarios and Patient Safety Tables 117
Table 16: High Risk Scenarios and Patient Safety - Category 1 Evidence 117
Table 17: High Risk Scenarios and Patient Safety - Category 2 Evidence 117
Table 18: High Risk Scenarios and Patient Safety - Category 3 Evidence 118
Table 19: High Risk Scenarios and Patient Safety - Category 4 Evidence 121
Table 20: High Risk Scenarios and Patient Safety - Category 5 Evidence 121
4.6.2 Referral - Current Practices, Interventions, Critical Success Factors and Effectiveness Tables 122
Table 21: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1 Evidence 122
Table 22: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence 122
Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence 126
Table 24: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence 135
Table 25: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 5 Evidence 138
4.6.3 Referral - Evidence Gaps Tables 139
Table 26: Evidence Gaps - Category 1 Evidence 139
Table 27: Evidence Gaps - Category 2 Evidence 139
Table 28: Evidence Gaps - Category 3 Evidence 140
Table 29: Evidence Gaps - Category 4 Evidence 140
Table 30: Evidence Gaps - Category 5 Evidence 141
5. PART 3: A STRUCTURED EVIDENCE-BASED LITERATURE REVIEW ON ADMISSION 143
5.1. Introduction: 143
5.2. High Risk Scenarios and Patient Safety in Admission 148
5.2.1 Medication communication 149

5.2.2 Medication-related admission 150
5.2.3 Pharmacist enhanced admission 150
5.2.4 Inappropriate admission 151
5.2.5 Adverse events 151
5.2.6 Inter-hospital transfer 152
5.2.7 Patient identification 152
5.2.8 Unplanned admission 152
5.2.9 Prior admission history 153
5.3. Current Practices, Interventions, Critical Success Factors and Effectiveness in Admission 153
5.3.1 Readmission rates 154
5.3.2 Readmission factors 155
5.3.3 Communication issues 155
5.3.4 Emergency department utilisation 156
5.3.5 Capacity planning 157
5.3.6 Preventable admissions 157
5.3.7 Pre-existing conditions 158
5.3.8 Prediction of risk of readmission 158
5.3.9 Patient safety controls 158
5.3.10 Admission avoidance 159
5.3.11 Hospital to residential aged care facility 159
5.3.12 Admission reduction 159
5.4. Evidence Gaps in Admission 159
5.4.1 Admission trends 160
5.4.2 Cost effectiveness 160
5.4.3 Electronic admission 161
5.4.4 Legal and ethical aspects 161
5.5 eHealth Services Research Group Commentary 161
5.6. Summary Tables on Admission 164
5.6.1 Admission - High Risk Scenarios and Patient Safety Tables 164
Table 31: High Risk Scenarios and Patient Safety - Category 1 Evidence 164
Table 32: High Risk Scenarios and Patient Safety - Category 2 Evidence 165
Table 33: High Risk Scenarios and Patient Safety - Category 3 Evidence 167
Table 34: High Risk Scenarios and Patient Safety - Category 4 Evidence 173
Table 35: High Risk Scenarios and Patient Safety - Category 5 Evidence 174
5.6.2 Admission - Current Practices, Interventions, Critical Success Factors and Effectiveness Tables 175
Table 36: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1 Evidence 175

Table 37: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence 176
Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence 178
Table 39: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence 189
Table 40: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 5 Evidence 192
5.6.3 Admission - Evidence Gaps Tables 194
Table 41: Evidence Gaps - Category 1 Evidence 194
Table 42: Evidence Gaps - Category 2 Evidence 195
Table 43: Evidence Gaps - Category 3 Evidence 196
Table 44: Evidence Gaps - Category 4 Evidence 197
Table 45: Evidence Gaps - Category 5 Evidence 198
6. Part 4: CONTINUITY OF CARE PERSPECTIVES 199
6.1. Introduction: 199
6.2 Maintaining a focus on Integrated Care 199
7. BIBLIOGRAPHY 203
7.1. Discharge 203
7.2. Referral 229
7.3. Admission 238
7.4. Additional References 252

1. INTRODUCTION

The Australian Commission on Safety and Quality in Health Care (the Commission) in partnership with NSW Health contracted the eHealth Services Research Group (eHSRG), University of Tasmania in June 2010 to undertake structured evidence-based literature reviews to identify evidence on benefits, enablers, barriers and challenges related to the processes of discharge, referral and admission. While the scope of the reviews aimed to cover all three processes, it was recognised from the outset that a greater volume of literature would be available relating to discharge and that this was likely become a primary focus.

These reviews have been prepared for the primary use of the Australian Commission for Safety and Quality in Health Care and the New South Wales Department of Health. It is however anticipated that it will also be useful for other health care improvement professionals and researchers in this field in Australia and Internationally. This review aims to make a contribution to help inform future work in the area of transfers between hospital and the community as well as potentially between community providers.

The reviews are presented in a manner that includes summaries of papers, reviews the strength of evidence and synthesizes major themes and issues. It is specifically focused on admission, discharge, and referral processes in the healthcare sector, particularly concentrating on literature published in the last ten years and covering both quantitative and qualitative research. While the primary source of materials on admission, discharge and referral processes are from within the Medline collection, the review also includes materials in journals outside that collection as well as other published material on the topic, including non-peer-reviewed papers, opinions and published reports.

These reviews are focused on identifying and analysing available literature on the processes of admission, discharge and referral in relation to the following six key questions:

1. What is the current practice to date along with barriers to, and facilitators of success, relating to:
    - Safety (including high risk scenarios);
    - Efficiency (costs and benefits);
    - Sustainability and quality (effectiveness).
2. What high risk scenarios can be identified from the literature?
3. What interventions in this area were most effective?
4. What were the critical success factors or limitations of their effectiveness?
5. Is there evidence of sustainability and transferability for these interventions?
6. What are the gaps in evidence is this area?

In relation to literature on discharge processes the review also aims to provide a critical appraisal of the evidence in relation to a number of more specific questions including those related to discharge summary receipt experiences; impact on medication management, on patient outcomes, and financial effectiveness of different types of discharge processes; and, the role of communication frameworks. These more specific questions on discharge were phrased as follows:

- Receipt of discharge summaries – how often do they get there, what is the quality of those received, are they actually used?
- Medications – how useful are discharge summaries when medications have been altered during hospital and community care?
- Is there evidence that discharge summaries improve patient outcomes – e.g. reduced adverse events at home (including falls and medication errors), reduced unplanned readmissions to acute care, reduced emergency department presentations?

- What is the financial impact of using discharge summaries – reduced readmissions, decreased emergency department attendances?
- Is there evidence that one form of discharge summary is more effective – electronic vs. paper discharge summaries?
- Communication frameworks – how and where are they used, have they been proven successful, if so, what are the key points for the processes of discharge, referral and admission?

This document is structured into four parts. The first three parts present structured reviews of literature on the processes of discharge, referral and admission respectively as described above. The fourth part of this document adopts a continuity of care perspective to briefly highlight some of the important inter-relationships between these processes. This perspective emphasizes a holistic approach to health care safety and quality process improvement and highlights the limitations, challenges and dangers of simply focusing on the evidence, or gaps in evidence identified in the individual reviews presented in parts 1-3. The document concludes with a comprehensive bibliography of all relevant materials identified during the conduct of this review as well as any other references utilised.

Following an examination of the key questions posed for the literature reviews on discharge, referrals and admissions it was determined that it was appropriate to structure the analysis and discussion of the literature on the benefits, enablers, barriers and challenges of these processes into the following three main sections:

- High Risk Scenarios and Patient Safety;
- Current Practices, Interventions, Critical Success Factors and Effectiveness; and
- Evidence Gaps.

In each section, key issues are identified and relevant peer-reviewed literature reviewed and discussed. Each section also contains summary tables of all materials identified as relevant for that section including non-peer reviewed materials, published reports and opinions.

To assist in assessing the nature and type of literature reviewed including the strength of evidence and level of sustainability and transferability of the interventions, entries in the tables are sorted into one of 5 categories covering the range of literature identified. Thus each of the 3 sections has up to 5 summary tables covering materials from category 1 and 2 (multi- or single-site evidence-based interventions) through category 3 (pre-intervention studies) to categories 4 and 5 (published reviews, opinions and reports).

As indicated above, part four of the report then briefly considers some of the inter-relationships between these reviews and adopts a continuity of care perspective that emphasizes a holistic approach to health care safety and quality process improvement. The document concludes with a comprehensive bibliography of all relevant materials identified during the conduct of this review as well as any other references utilised.

1.1. Background: Conceptual Considerations

In approaching the identification and analysis of literature relevant to the questions posed (in relation to discharge, referral and admission processes respectively) a major challenge was the lack of any generally accepted definitions for these terms. While all the terms are widely used, there appears to be a lack of consensus on the precise meaning of each term, even within a health care context. Indeed, even amongst the few definitions found in the literature there is little agreement, and the terms are ambiguous, and loosely applied.

This ambiguity resulted in the initial identification of a considerable volume of literature that was not ultimately pertinent to the review. For example, while ‘admission’ is routinely used to describe the intake of a patient into a health care setting (a hospital, an emergency department, to intensive care, to a community nursing round, a clinic list, a GP practice, or a residential aged care facility) it also frequently refers to a confession (in a medico-legal sense), or the acceptance of a healthcare professional into the membership of a learned college. Similarly, while discharge is routinely used to describe the departure or removal of a

patient from a particular health care setting, it also frequently refers to exudations of bodily fluids.

More significantly analysis of literature also identified differences both within and between different countries, medical jurisdictions and amongst different health professions in relation to how these terms are used to describe complex patient and information flows through the health system. For example, in Australia same day surgery is usually classified as 'admitted care' whereas in many other countries day surgery is considered to be 'non-admitted care'. Similarly, referral in an Australian context is used to describe both a process of transferring the care of a patient from one provider to another, and the formal document required as a part of cost re-imbursement by Medicare. Again, this is not the same in other countries. For discharge, there are also differences in how its boundaries are determined, for example, in some European countries a re-admission within 7 days of discharge is sometimes classified as a continuation of the first episode of care (for funding and payment purposes).

These definitional and conceptual challenges were mitigated in the search strategy by deploying broad definitions for all three terms to ensure a comprehensive coverage of the literature. These broad definitions were also complemented by the identification of a detailed list of key scenarios involving discharge, referral and admission processes respectively and the use of an extensive range of related search terms (including: patient separation; hospital separation; re-admission; eDischarge, transfer of care).

Importantly, across all three structured reviews the approach has prioritised research literature, reports and other materials concerned with the processes, experiences and insights related to the transfer of patients, information about them and/or their care from individual or teams of health professionals in one setting to those in another health organisation or setting (i.e. Inter-organisational processes rather than just intra-organisational processes).

As noted above, a consequence of this approach was that a very high proportion of the papers identified were either not relevant or made only passing reference to discharge, referral or admission processes. The team also found that to improve consistency and comparability of results within and between the evidence on discharge, referral and admission processes, it was occasionally necessary to categorise papers differently from the terms provided by their original authors.

The following broad working definitions were deployed to frame the approach:

- **Discharge can be broadly defined as** 'the processes, tools and techniques by which an episode of treatment and/or care to a patient is formally concluded by a health professional, health provider organisation or individual'

It should be noted that the process of being discharged following an episode of care most frequently occurs as a result of formal communication from a health professional but can also arise as a result of self-discharge (often contrary to medical advice) or technically as a result of patient mortality. Discharge arising from a change in the type of care provided or transfer to another institution/facility is referred to as a 'statistical discharge' (Australian Bureau of Statistics 2010; Australian Institute of Health and Welfare 2008).

- **Referral can be broadly defined as** 'the processes, tools and techniques by which a patient (and the provision of all or part of their care) is transferred between health professionals and health provider organisations to facilitate access to services and/or advice that the referring source is unable or unwilling to provide'

It should be noted that the process of referral is routinely used to denote any service booked with one service provider by another on behalf of a patient and that the term referral is frequently used to describe both the process itself, and the document or information which accompanies the transfer. Referrals include those from a general practitioner to a specialist, from a GP to a hospital, from a hospital to a community health service, or from one allied health provider to another. Referrals are also used within large healthcare facilities (such as hospitals) to secure additional specialist input into the care of a patient. For example, a patient being treated for cancer, but with symptoms suggestive of depression, may be referred by the oncologist to a psychiatrist. In Australia, the government health funding agency, Medicare, requires a formal documented transfer of care from a general practitioner

to a specialist as a condition of cost reimbursement. While there are also processes involving self-referral, patients in Australia are not able to access specialist medical services directly without this authorising document (AIHW 2010; NLM 2010).

- **Admission can be broadly defined as:** the processes, tools and techniques by which an episode of care is formally commenced by a health professional or health provider organisation involving their acceptance of responsibility for a patient and/or their treatment and care.

It should be noted that the process of admission typically follows a clinical decision that a patient requires overnight or same-day care or treatment. The process of admission may include: formal admission (i.e. the processes recording commencement of patient entry for treatment, care and/or accommodation), statistical admission (i.e. the administrative processes by which a hospital records the commencement of a new episode of care, with a new care type for a patient within one stay) and outpatient admission involving patients commencing treatment and/or care but not involving the provision of accommodation by the health provider (AIHW 2010; NLM 2010).

In conducting these reviews it is acknowledged that these broad working definitions are not universally recognised. However, by articulating them clearly and complementing them with a detailed list of key scenarios along with an extensive range of related search terms, it is anticipated that the approach used in the conduct of the review is transparent. Figure 1 aims to illustrate the basic flows of patients/information around the 3 processes of discharge, referral and admission.

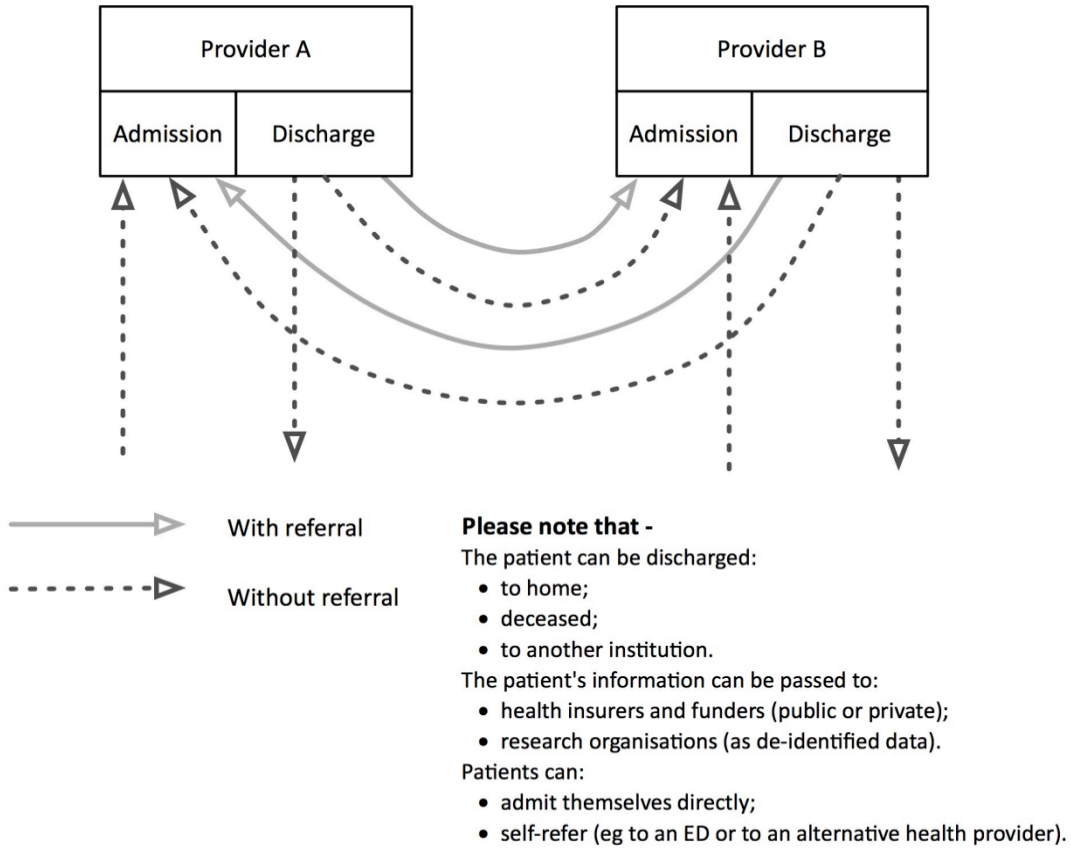

Figure 1. Patients and information flows involved in discharge, referral and admission

The approach utilised in conducting these reviews has deliberately prioritised literature focused on processes, tools and techniques as well as experiences and insights related to the transfer of patients, information about them and/or their care from individual or teams of

health professionals in one setting to those in another health organisation or setting (i.e. inter-organisational processes rather than just intra-organisational processes). This emphasis on the links between the three processes of discharge, referral and admission is presented in the diagram above. This simple diagram aims to draw attention to the links between the processes.

2. METHODOLOGY

The primary aim of the methodology was to ensure the production of structured evidence-based literature reviews identifying evidence about benefits, enablers, barriers and challenges related to the processes of discharge, referral and admission in Australian and International published literature.

This section provides information on the approach used in conducting the reviews. It details the approach to scoping the focus of the study including inclusion/exclusion criteria; search terms; and the search strategies deployed to identify peer-reviewed publications, non-peer reviewed publications, reports and other materials. It also describes the analytical approach and categorisation developed to assist understanding of the nature and type of literature reviewed and the strength of evidence and transferability/sustainability of the reported results, approaches and insights. The approach utilised in conducting this review draws on the principles of the UK's Quest for Quality and Improved Performance research initiative [www.health.org.uk/QQUIP].

Please note: specific comments relating to methodological issues for any of the individual reviews presented below are made in the introduction sections to the discharge, referral and admission reviews (Parts 1, 2 and 3) respectively.

2.1. Scope

In developing the methodological approach for undertaking the review the following broad inclusion and exclusion criteria were applied:

- Each review is primarily, but not exclusively, focused respectively on literature related to the processes of discharge, referral and admission published in Australia and Internationally over the last ten years (2000 – 2010).
- Literature published in the form of abstracts, short reports or reviews are included in the comprehensive bibliography at the end of this document but were not formally analysed in the body of the report, except where they offered a new or unique contribution to answering the primary questions posed by the review.
- Literature published in languages other than English has generally been excluded from the reviews.
- Detailed lists of key scenarios, search terms and criteria for literature exclusion pertaining specifically to discharge, referral and admission are discussed in the introductions to parts 1, 2 and 3 respectively.
- In 2008 the Commission contracted the eHealth Services Research Group to conduct a structured evidence based review on clinical handover defined as the transfer of 'information, responsibility and accountability of a patient's care'. Literature covering these types of handovers from one team of health professionals to another within the same organisation has generally been excluded from this review. For reference visit: [www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/PriorityProgram-05**].**
- These reviews are primarily, but not exclusively, focused on literature related to the transfer of patients, their information and/or their care from individual, or teams of, health professionals based in one setting to those in another health organisation or setting (i.e. Inter-organisational processes rather than intra-organisational processes per se).
- The approach utilised in conducting these reviews deliberately prioritised literature focused on processes, tools and techniques as well as experiences and insights related to the transfer of patients, information about them and/or their care from individual or teams of health professionals in one setting to those in another health organisation or setting (i.e. Inter-organisational processes rather than just intra-organisational processes).

The literature reviews were conducted in a period of 10 weeks during June, July and August 2010.

2.2. Search Strategy

The search strategy used in undertaking this review aimed to ensure the identification of:

- Peer-reviewed publications providing quantitative and/or qualitative evidence on the benefits, enablers, barriers and challenges related to the processes of discharge, referral and admission in Australian and International literature published primarily over the last ten years
- Other peer-reviewed and non-peer reviewed publications, opinions and reports, particularly where these identify high risk scenarios, current practices, interventions, critical success factors and effectiveness; and, evidence gaps.

The review of literature on discharge processes also aimed to support a critical appraisal of the evidence in relation to a number of more specific questions including those related to discharge summary receipt experiences; impact on medication management, on patient outcomes, and financial effectiveness of different types of discharge processes; and, the role of communication frameworks.

Across all three reviews the formal search strategy targeted a number of sources of potential materials on discharge, referral and admission processes including full text databases; citation databases and sources; web-based search engines and direct analysis of output from known centres of excellence, government agencies and individual experts.

- The key databases searched to identify and collect original peer-reviewed publications and reviews on discharge, referral and admission were: MEDLINE (PUBMED), OVID, PROQUEST, Cochrane Library, EMBASE, SCOPUS, MD Consult, Health (Informit), CINAHL and TRIP. Additional publications were identified and collected following citation searching on the multiple databases available through ISI Web of knowledge;
- The key web-based search engine utilised was Google Scholar. This was supplemented with searches using: Altavista, Yahoo!Search, Dogpile and InfoSeek;
- Based on eHSRG knowledge of existing centres of excellence, international, national and state-based government agencies and individuals working in the health communications domain, searching and direct communication were engaged in to identify any recent publications, reports or opinions.

Results of this search strategy for each of the respective reviews are detailed in Parts 1, 2 and 3 below respectively. In summary following detailed search and source filtering for each review the results were as follows:

Discharge:

> A total of 442 source materials were identified for assessment, categorisation and inclusion in the review. From these materials a subset of 91 core publications were selected for further discussion and presentation under identified themes within the body of the review.

Referral:

> A total of 152 source materials were identified for assessment, categorisation and inclusion in the review. From these materials a subset of 25 core publications were selected for further discussion and presentation under identified themes within the body of the review.

Admission:

> A total of 237 source materials were identified for assessment, categorisation and inclusion in the review. From these materials a subset of 33 core publications were selected for further discussion and presentation under identified themes within the body of the review.

All other source materials are recorded in the comprehensive bibliography. The selection and categorisation rationale for the core **91; 25; and 33 core** publications respectively is discussed below.

2.3. Assessment, Categorisation and Presentation

Across all three reviews presented below, the process of assessment, categorisation and selection for presentation from amongst the source materials identified was guided by five principal aims:

1. To identify, categorise and assess key materials particularly identifying **high risk scenarios and patient safety;**

2. To identify, categorise and assess key materials particularly in relation to **current practices, interventions, critical success factors; and effectiveness**;

3. To identify, categorise and assess key materials particularly in relation to **evidence gaps**;

4. To ensure that the nature and type of literature reviewed can be assessed in terms of the strength of evidence and level of **sustainability and transferability** using a five tier categorisation;

5. To ensure that the review is user-friendly and **avoids duplication in the identification and presentation of key issues** found amongst the source materials.

The review of literature on discharge processes was also guided by the aim to identify any specific evidence in relation to questions concerning discharge summary receipt experiences; impact on medication management, on patient outcomes, and financial effectiveness of different types of discharge processes; and, the role of communication frameworks.

Across the three reviews all source materials were independently assessed and categorised separately by at least two members of the eHSRG. The assessment process involved reviewers analysing: the clinical setting of the material; the scope and focus of the material; the reported research methodology; the reported results and outcomes; and the implications and insights of the material. Following the assessment process all source materials were categorised into one of five broad categories. These categories were developed to enable readers to quickly and easily differentiate between different types of intervention based studies; and, differentiate intervention based studies from pre-interventional studies, reviews, opinions and reports.

While the traditional systematic review involves mainly using meta-analysis techniques, the reviews presented here identify discharge, referral and admission studies covering both quantitative and qualitative research methodologies and research data. The reviews aim to provide a structured evidence based report that can be used to inform future research, practice and policy development.

The five tiered categorisation is as follows:

- **Category 1: Comprehensive intervention based study:** Clear articulation of entire approach covering data collection, intervention design, implementation and evaluation and insights into lessons learned. High level of potential transferability.
- **Category 2: Intervention based study:** Approach to intervention not comprehensive or limited in depth/clarity in published study. Medium to Low level of potential transferability.

- **Category 3: Pre-intervention study:** Studies variously engaging in data collection, analysis and evaluation to investigate different aspects of discharge, referral or admission processes. Focused on: enhancing understanding, identifying issues/gaps/challenges/risks or the utility of particular research approaches. Some studies provide recommendations for change management, communication frameworks, improvement interventions or system reform. High to Low level of potential transferability of pre-intervention approaches.
- **Category 4: Published Opinions or Reviews:** Publications not involving any primary research some non-peer-reviewed. Can provide potentially useful insights/perspectives on different aspects of discharge, referral and/or admission processes including high risk scenarios, evidence gaps, and other factors imposing limitations on improvement initiatives and/or benefits. Includes other literature reviews and meta-reviews **(e.g. Cochrane).**
- **Category 5: Published Reports:** Reports produced by Government or non-government agencies, health associations, professional bodies and/or centres of excellence

Following the independent assessment and categorisation of all source materials, four members of the eHSRG compared the results and agreed upon a final list of core publications across all categories to be presented and discussed within the three main sections of each of the reviews. At the broadest level the final selection process was guided by a number of factors including:

- Ensuring the presentation of key intervention based studies (citation scores and potential for transferability /sustainability were considered);
- Answering the identified key research questions posed;
- Providing a representative selection of materials across all five categories;
- Avoiding duplication in the identification and presentation of key issues found amongst the source materials; and
- Optimising the utility and usability of this document.

Note: Australian papers are identified within text with an asterix (*).

The remainder of this document is structured into four parts. The first three parts present structured reviews of literature on the processes of discharge, referral and admission respectively as described above. To enable easy identification of the separate reviews, the document border for each of the reviews is a different colour as follows:

- Discharge - blue
- Referral - red
- Admission - green.

The fourth part of this document adopts a continuity of care perspective to briefly highlight some of the important inter-relationships between these processes. This perspective emphasises a holistic approach to health care safety and quality process improvement and highlights the limitations, challenges and dangers of simply focusing on the evidence, or gaps in evidence identified in the individual reviews presented in parts 1-3. The document concludes with a comprehensive bibliography of all relevant materials identified during the conduct of this review as well as any other references utilised.

3. PART 1: A STRUCTURED EVIDENCE-BASED LITERATURE REVIEW ON DISCHARGE

As discussed in the introduction to this report, while the scope of the document as a whole aims to review literature on the three processes of discharge, referral and admission, it was recognised from the outset that a greater volume of literature would be available relating to discharge and that this was likely to become the predominant focus for the document.

For the purposes of this review discharge has been broadly defined as 'the processes, tools and techniques by which an episode of treatment and/or care to a patient is formally concluded by a health professional, health provider organisation or individual'.

3.1. Introduction

This section provides an introduction to the structured evidence based review on discharge. It complements the methodology section above and details some specific issues pertaining to the review on discharge.

The six over-arching questions structuring this review were:

1. What is the current practice to date along with barriers to, and facilitators of success, relating to:
    a. Safety (including high risk scenarios);
    b. Efficiency (costs and benefits);
    c. Sustainability and quality (effectiveness).
2. What high risk scenarios can be identified from the literature?
3. What interventions in this area were most effective?
4. What were the critical success factors or limitations of their effectiveness?
5. Is there evidence of sustainability and transferability for these interventions?
6. What are the gaps in evidence is this area?

This review of literature on discharge processes also aims to provide a critical appraisal of the evidence in relation to a number of more specific questions, including: those related to discharge summary receipt experiences; impact on medication management, on patient outcomes, and financial effectiveness of different types of discharge processes; and, the role of communication frameworks.

In this regard this section provides some more detailed information on the methodological approach used in relation to the scope, identified discharge scenarios, key search terms and the specific exclusion criteria utilised in relation to the filtering, selection and analysis of the final core publications to be included.

Scope

Definitional ambiguity and the range of uses of the term discharge (even within a health or medical context) posed significant challenges for filtering, selection and analysis of relevant literature.

Examples of initial basic searches of major databases include:

An initial PUBMED search on the terms discharge and patient discharge identified 49,244 and 19, 268 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 4,100

An initial ProQuest search on the terms discharge and patient discharge identified 68,504 and 1,781 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 352

An initial CINAHL search on the terms discharge and patient discharge identified 16,592 and 4,761 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 111

An initial Scopus search on the terms discharge and patient discharge identified 66, 551 and 46, 452 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 562.

The search terms and MeSH categories used were as follows:

- Discharge
- Patient discharge
- eDischarge
- Electronic discharge
- Discharge planning
- Statistical discharge
- Patient separation
- Statistical separation
- Discharge summary/ies
- Electronic discharge summary/ries
- Hospital discharge
- Hospital transfer
- Hospital to Community transfer
- Inter-professional transfer
- Inter-departmental transfer
- Inter-hospital transfer
- Intra-hospital transfer
- Acute care discharge
- Discharge medications

An additional strategy employed was to use citation tracking from high-value contributions to the review.

The eHSRG also identified the following key discharge scenarios to complement the search terms and refine the search strategy. These scenarios are:

- Hospital to Community discharge including; Hospital to GP; Hospital to Aged Care Facility; Hospital to Community Care Teams; Hospital to Home;
- Emergency Department to Community discharge;
- Outpatient clinic discharge;
- Community Care discharge;
- Respite Care discharge;
- GP Clinic discharge;
- Residential Aged Care discharge;

- Inter/intra-hospital Transfer;
- Discharge planning;
- Re-admission;
- Unplanned readmissions; and
- eDischarge.

Literature analysed but subsequently excluded

After an initial search using key terms listed above, papers were briefly evaluated to identify those that were outside the scope of the review, i.e. not related to the discharge process, such as: human discharge (i.e. bodily exudate).

The analysis of subsequent papers identified a very large number that, while matching the search terms, had very limited, if any, relevance to the questions being posed (i.e. often only a single reference made to discharge in the paper). It was also quickly evident that there were variations in context of patient flow and transition (between countries and between the public and private sectors).

Given the significant number of papers that were excluded from the discharge review because their content had limited or no relevance to the research questions or because these papers did not contribute to understanding discharge processes, tools or techniques it was consider useful to provide some examples.

Examples of excluded papers (that might appear superficially to be of direct relevance to this review) are presented below along with the basic reasoning for the paper's exclusion.

Too general

Podichetty and Penn (2004), *The Progressive Roles of Electronic Medicine: Benefits, Concerns, and Costs*, provides a general review of the use of information technology in healthcare, but the paper pays scant attention to the role of technology in better management of patient admission, discharge or referral.

Within hospital

Eisenberg, Murphy, Sutcliffe, Wears, Schenkel, Perry and Vanderhoef (2005), *Communication in Emergency Medicine: Implications for Patient Safety*, reviews internal communication within an emergency department, but does not consider communication to or from primary care clinicians.

Apker, Mallak and Gibson (2007), *Communicating in the "Gray Zone": Perceptions about Emergency Physician–hospitalist Handoffs and Patient Safety*, discusses communication between the emergency department and the rest of the hospital, but does not consider communication from or to primary care providers.

Hinami, Farnan, Meltzer and Arora, (2009), *Understanding communication during hospitalist service changes: a mixed methods study* discusses the impact of hospital service changes on internal handoffs, but makes no mention of communication outside the hospital.

Solet, Norvell, Rutan and Frankel (2005), *Lost in Translation: Challenges and Opportunities in Physician-to-Physician Communication During Patient Handoffs*, considers handoffs in hospital without mention of the transfer of care into or out of the hospital.

Kwan and Sandercock (2004), *In-Hospital Care Pathways for, Stroke: An Updated Systematic Review*, provide a review of the literature concerning care for patients who have had a stroke, but only in a hospital setting.

Lindenauer, Rothberg, Pekow, Kenwood, Benjamin and Auerbach (2007), *Outcomes of Care by Hospitalists, General Internists, and Family Physicians*, reviews the cost and quality of in-

hospital care provided by hospitalists, specialists and family physicians. The paper makes no mention of external communication.

Primary care only

Singh, Thomas, Mani, Sittig, Arora, Espadas, Khan and Petersen (2009), *Timely Follow-up of Abnormal Diagnostic Imaging Test Results in an Outpatient Setting*, describes a quality improvement process in primary care, but does not discuss admission, discharge or referral.

Goodyear-Smith, Wearn, Everts, Huggard and Halliwell (2005), *Pandora's electronic box: GPs reflect upon email communication with their patients*, explores the use of email for communication between GPs and patients, without mention of admission, discharge or referral.

Tam, Knowles, Cornish, Fine, Marchesano and Etchells, (2005) *Frequency, type and clinical importance of medication history errors at admission to hospital: a systematic review* considers communication with patients about medications in an outpatient setting, but does not discuss transitions of care into or out of other settings.

Narrow clinical focus

Delaney (2008), *Outcome of Discharge Within 24 to 72 Hours After Laparoscopic Colorectal Surgery*, describes an audit of readmission rates following a specific clinical intervention. The paper dopes not discuss communication with primary care physicians.

Ho, Tsai, Maddox, Powers, Carroll, Jackevicius, Go, Margolis, DeFor, Rumsfeld and Magid (2010), *Delays in Filling Clopidogrel Prescription After Hospital Discharge and Adverse Outcomes After Drug-Eluting Stent Implantation: Implications for Transitions of Care*, examines a specific aspect of clinical care in a narrowly defined patient cohort.

Delgado-Rodríguez, Gómez-Ortega, Sillero-Arenas and Llorca, (2001) *Epidemiology of Surgical-Site Infections Diagnosed after Hospital Discharge: A Prospective Cohort Study* describes an audit of surgical site infections occurring following hospital discharge. Patients were contacted by telephone 30 days post discharge, but primary care providers were not involved in either the conduct of the study, or in the hospital's routine clinical practice.

Disease prevention

Atherton,Car, and Meyer (2009). *Email for the provision of information on disease prevention and health promotion (Protocol)*, is confined in its focus to activities associated with disease prevention and health promotion.

Data analysis and coding

Quan, Parsons and Ghali (2004), *Validity of Procedure Codes in International Classification of Diseases, 9th Revision, Clinical Modification Administrative Data* reviews the accuracy of clinical coding. The paper gives little attention to admissions, discharges or referrals.

Ranmuthugala, Brown, Lymer and Thurecht (2008), *Hospital admissions in the National Health Survey and hospital separations in the National Hospital Morbidity Dataset: What is the difference?* reports on a comparison of statistical measures of admissions and separations; there is no discussion of the application of these measures to managing or improving patient care.

This finally produced the following figures:

> A total of 442 source materials were identified for assessment, categorisation and inclusion in the review. From these materials a subset of 91 core publications were selected for further discussion and presentation under identified themes within the body of the review

3.2. High Risk Scenarios and Patient Safety in Discharge

This section presents and discusses the major themes, issues and results identified within the literature pertaining to high risk scenarios and patient safety in discharge. The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

The major evidence based themes identified in the literature relating to high risk scenarios and patient safety around discharge processes can be summarised as follows:

- **Medication management:** the literature provides evidence of risks which are associated with poor management of medications around the time of patient discharge, and points to a significantly increased risk of adverse drug events.
- **Communication about medication:** the literature points to risks which are associated with poor communication about medications at the time of patient discharge (from hospital or from residential aged care). The risks can significantly increase the likelihood of adverse drug events.
- **Problems with discharge communication:** the literature points to risks which occur with poor communication at the time of discharge. The transfer of a patient to a different care setting should be accompanied by prompt, relevant and accurate communication about the episode, including details of active clinical problems and plans for ongoing management.
- **Readmission**: the literature provides evidence of interventions which can reduce the risk of unplanned readmissions.
- **Patient characteristics:** the literature points to an increase in risks associated with discharge for patients who are elderly, or who have diminished literacy.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

3.2.1 Medication management:

- **Walker, Bernstein, Tucker Jones, Piersma, Kim, Regal, Kuhn, Flanders (2009) Impact of a Pharmacist-Facilitated Hospital Discharge Program: A Quasi-Experimental Study [Table 2, p. 60]**

  Walker *et al.* used a prospective, alternating month, quasi-experimental design to compare outcomes of patients receiving the intervention with those of a of control group. Patients in the intervention group received medication therapy assessments, medication reconciliation, screening for adherence, counselling and education, and a post-discharge telephone follow-up. The study showed medication discrepancies in 33.5% of the intervention patients, and in 59.6% of the control patients.

- **Bergkvist, Midlöv, Höglund, Larsson, Bondesson, Eriksson (2008) Improved Quality in the Hospital Discharge Summary Reduces Medication Errors-LIMM: Landskrona Integrated Medicines Management [Table 1, p.56]**

  Bergkvist *et al.* undertook a randomised controlled trial using a medication management model (tools, activities for medication reconciliation and review) to improve the quality of discharge summaries in transition from hospital to primary care. Results from the study found that patients in the intervention group on average had a few medications. The proportion of patients without medication errors was higher in the intervention group (73.5%) compared with the control group (63.5%), however the increase was not statistically significant (*P*=0.319).

- **Kripalani, Henderson, Jacobson, Vaccarino (2008) Medication Use Among Inner-City Patients After Hospital Discharge: Patient-Reported Barriers and Solutions [Table 3, p. 62]**

  Kripalani *et al.* surveyed patients by telephone two weeks after discharge. The researchers found that only 40% of participants reported filling their prescriptions on the day of discharge;

an additional 20% reported filling their prescription one or two days later. 22% of participants had still not filled their prescriptions at the time of the telephone interview. Reasons for delay included: costs, transport and long waiting times at pharmacies.

- **Kripalani, Price, Vigil, Epstein (2008) Frequency and Predictors of Prescription-related Issues after Hospital Discharge [Table 3, p. 63]**

  Using patient clinical and administrative data Kirpalani *et al.* found that 7.2% of all patients sampled experienced a prescription-related issue 48-72 hours after hospital discharge because they did not fill their prescription immediately after discharge.

- **Vira, Colquhoun, Etchells (2006) Reconcilable Differences: Correcting Medication Errors at Hospital Admission and Discharge [Table 3, p. 65]**

  Vira *et al.* sampled sixty patients from a Canadian community hospital to assess the impact of medication review and reconciliation on admission and discharge. Results from the study showed that 60% of patients had variances at admission or discharge and 11% had significant clinical outcomes. At discharge, 41% of patients had one or more unintended medication variances, including 10 patients with three or more variances.

- **Coleman, Smith, Raha, Min (2005) Posthospital Medication Discrepancies: Prevalence and Contributing Factors [Table 3, p. 61]**

  Coleman *et al.* undertook an evaluation of medication discrepancies post discharge in people aged 65 years and over. Results from the study demonstrated that just over 14% of patients experienced one or more discrepancies. These discrepancies were attributed to either patients or to hospital systems. 14% of patients with discrepancies were re-hospitalised.

- **Midlöv, Bergkvist, Bondesson, Eriksson, Höglund (2005) Medication Errors when Transferring Elderly Patients Between Primary Health Care and Hospital Care [Table 3, p. 63]**

  Midlöv *et al.* evaluated the frequency and nature of medication-related errors and found that 85% of patients transferred from primary to secondary care had at least one medication error, compared to 54% of patients transferred from secondary to primary care. The most common type of error for patients being discharged from hospital was the addition to the patient's medication regime of a drug not previously prescribed.

- **Paulino, Bouvy, Gasterlurrutia, Guerreriro, Buurma (2004) Drug Related Problems Identified by European Community Pharmacists in Patients Discharged From Hospital [Table 3, p. 64]**

  Paulino *et al.* examined what community pharmacists could do in order to solve or prevent medication-related problems. Results from the study demonstrated that there was a total of 63.7% of drug-related problems detected in the sample. The most common problem was identified as a lack of knowledge about the medication and its function.

- **Nazareth, Burton, Shulman, Smith, Haines, Timberall (2001) A Pharmacy Discharge Plan for Hospitalized Elderly Patients - A Randomized Control Trial [Table 1, p. 59]**

  Nazareth *et al.* used a "Patient Discharge Form" and pre-discharge medication review to improve medication management in elderly hospitalised patients. Results from the intervention demonstrated no significant difference between coordinated hospital and community pharmacy care discharge plans and standard routine discharge plans. [Note: this paper was found to be related to a number of themes and so is repeated within each relevant theme area]

3.2.2 Communication about medication

- **Karapinar, van Bemt, Zoer, Nijpels, Borgsteede (2010) Informational Needs of General Practitioners Regarding Discharge Medication: Content, Timing and Pharmacotherapeutic Advices [Table 3, p. 62]**

  Karapinar *et al.* undertook a survey of Dutch GPs and found that 75% experienced delays with the delivery of discharge information relating to medications. They also found GPs were concerned about missing information on discharge, such as the rationale for changing medication during admission.

- **Tija, Bonner, Briesacher, McGee, Terrill, Miller (2009) Medication Discrepancies Upon Hospital to Skilled Nursing Facility Transitions [Table 3, p. 65]**

  Tija *et al.* used a cross-sectional study to describe the prevalence and type of medications and the source of medication errors upon transfer from hospitals to skilled nursing facilities (SNF). Results from the study demonstrated disagreements between discharge summary and patient referral forms in half of all admissions to the SNF.

- **Orrico (2008) Sources and Types of Discrepancies Between Electronic Medical Records and Actual Outpatient Use [Table 3, p. 64]**

  Orrico reviewed patient electronic medical records (EMRs) followed by in-depth interviews with patients and found 223 discrepancies between patient medication use and the EMR. The most common error (70.4%) was the documentation of medication on an EMR that was no longer being taken by the patient. Most errors (78%) were attributed to system errors; the remainder were categorised as patient errors.

- **Wilcock, Lawrence (2008) Medication at Discharge: Is Enough Information Provided? [Table 3, p. 65]**

  Wilcock and Lawrence compare medications prescribed at discharge with those prescribed during admission, and an assessment of information provided to the general practitioner that describes these changes. The study found that 14% of medications were non-formulary. 12% of information provided on discharge was scored as being 'very poor'.

- **Wong, Bajcar, Wong, Alibhai, Huh, Cesta, Pond, Fernandes (2008) Medication Reconciliation at Hospital Discharge: Evaluating Discrepancies [Table 3, p. 66]**

  This paper describes a study to identify, characterise and assess the clinical impact of unintentional medication discrepancies at discharge. Results from the study demonstrated that 70% of patients sampled from a general medical ward at a tertiary teaching hospital had one actual or potential unintentional medication discrepancy at discharge. The most common type of discrepancy was a medication prescription which was incomplete and needed further details.

- **Grimes, Delaney, Duggan, Kelly, Graham (2007) Survey of Medication Documentation at Hospital Discharge: Implications for Patient Safety and Continuity of Care [Table 3, p.61]**

  Grimes *et al.* undertook a three-month survey of medication documentation at discharge from an Irish hospital. Results from the study demonstrated a risk for patients when transitioning between care environments. The rate of medication errors ranged between 11% and 53% of all patients. They from the survey also demonstrated that there was no greater risk of discrepancy for patients discharged during weekend periods with limited on-call staff than there was for those discharged on weekdays.

- **Glintborg, Andersen, Dalhoff (2006) Insufficient Communication About Medication Use at the Interface Between Hospital and Primary Care [Table 3, p. 61]**

  Glintborg *et al.* examined 83 surgical and 117 medical patients by reviewing their medication records from hospital, and followed up with a patient interview one week after discharge. Results showed that one in five medications used by patients after hospitalisation were unknown to the hospital. Medications prescribed by patients' general practitioners were not recorded in hospital records. Discharge letters were very poor, and often omitted medications.

- **Kunz, Wegscheider, Guyatt, Zielinski, Rakowsky, Donner-Banzhoff, Müller-Lissner (2007) Impact of Short Evidence Summaries in Discharge Letters on Adherence to Practitioners to Discharge Medication [Table 1, p. 58]**

  Kunz *et al.* undertook a cluster-randomised controlled trial to assess the impact of short, one-sentence evidence summaries appended to consultants' letters to primary care physicians (PCPs) and the adherence of PCPs to recommendations made by the consultant regarding medication for patients with chronic medical problems. They found that appending an evidence summary to discharge letters resulted in an increase in adherence to discharge medication (29.6% to 18.5% - control group). For non-adherence to consultants' recommendations, the most significant reason was budget-related reasons.

- **McMillian, Allan, Black (2006) Accuracy of Information on Medicines in Hospital Discharge Summaries [Table 3, p. 63]**

  McMillian *et al.* reviewed medication accuracy in hospital discharge summaries at an Auckland-based hospital by rating the severity of medicine-related errors for 100 general medical and 100 surgical services. Results from this study found that there was a high error rate, particularly amongst the general medical patients' discharge summaries.

- **Boockvar, Fishman, Kyriacou, Monias, Gavi, Cortes (2004) Adverse Events Due to Discontinuation in Drug Use and Dose Changes in Patients Transferred Between Acute and Long-term Care Facilities [Table 3, p. 60]**

  Boockvar *et al.* reviewed medical records to examine medication changes during transfer between hospitals and nursing homes and related adverse drug events. They found that medication regimes changed significantly during patient transfer between facilities because of poor communication.

3.2.3 Problems with discharge communication

- **Pham, Grossman, Cohen, Bodenheimer (2008) Hospitalists and Care Transitions: The Divorce of Inpatient and Outpatient Care [Table 3, p. 65]**

  Pham *et al.* interviewed hospital executives, medical groups, policymakers and hospital and community-based physicians to examine the role of hospitals on care transitions. Results showed that the 'hospitalist' model has led to a divide between inpatient and outpatient care and communication. There is a growing burden on the coordination of care resulting from increased barriers to the transfer of patients between providers. Respondents noted that discharge summaries do not explicitly detail medical history or important clinical information.

- **van Walraven, Taljaard, Bell, Etchells, Zarnke, Stiell, Forster (2008) Information Exchange Among Physicians Caring for the Same Patient in the Community [Table 3, p. 65]**

  van Walraven *et al.* describes the lack of information exchange between hospitals and GPs who treat the same patient. Results showed poor exchange of information between health care providers and that lack of exchange of information severely affects continuity of care for the patient. The paper also identified that poor exchange of information was likely due to the fact that physicians felt that the need for more information about care from other providers was unnecessary.

- **Witherington, Pirzada, Avery (2008) Communication Gaps and Readmissions to Hospital for Patients Aged 75 Years and Older: Observational Study [Table 3, p. 66]**

  Witherington *et al.* undertook a retrospective study to identify communication gaps at hospital discharge for patients aged 75 years and over who were readmitted within 28 days. They found that 28% of patients returned within three days of discharge and 44% within seven days. 62% of patients had no discharge letter, or returned before the letter was processed. Results also demonstrated that medication information and documentation was incomplete in two-thirds of all discharge documentation. 41% of readmissions were medication-related, and 21% of these were preventable. [Note: this paper was found to be relates to a number of themes and so is repeated within each relevant theme area]

- **Kripalani, LeFevre, Phillips, Williams, Basaiah, Baker (2007) Deficits in Communication and Information Transfer Between Hospital-based and Primary Care Physicians: Implications for Patient Safety and Continuity of Care [Table 3, p. 62]**

  Kripalani *et al.* undertook an exhaustive review of literature detailing deficits in communication and information transfer between hospitals and primary care physicians. Results showed that direct communication between hospitals and primary care providers (PCPs) is relatively low and quite infrequent.

- **Moore, McGinn, Halm (2007) Tying Up Loose Ends: Discharging Patients with Unresolved Medical Issues [Table 3, p. 63]**

  Moore *et al.* undertook a retrospective cohort study to evaluate the frequency of outpatient workups as recommended by physicians for patients discharged from medicine or geriatric

services. Results from this study demonstrated that 27% of patients discharged had outpatient workups, of which half were further diagnostic procedures and laboratory tests. A third of all recommended post-discharge workups were not completed.

- **Moore, Wisnvesky, Williams, McGinn (2003) Medical Errors Related to Discontinuity of Care from an Inpatient to an Outpatient Setting [Table 3, p. 64]**

  Moore *et al.* investigated the prevalence of medical errors related to the transfer of patients between acute care and community care settings, particularly when patients are re-hospitalised. Results demonstrated that a significant number of patients had medical errors as a result of failure to transfer the discharge summary between providers.

3.2.4 Readmission:

- **Koehler, Richter, Youngblood, Cohen, Prengler, Cheng, Masica (2009) Reduction of 30-day Postdischarge Hospital Readmission on Emergency Department (ED) visit Rates in High-risk Elderly Medical Patients Through Delivery of a Targeted Care Bundle [Table 1, p. 57]**

  Koehler *et al.* undertook a randomised controlled trial to assess the impact of a 'supplemental care bundle' on hospital readmission rates for elderly patients. Results from the study showed that the supplemental care bundle decreased unplanned readmissions within 30 days of discharge; however, readmission rates between 30-60 days were significantly higher in the intervention group, and comparable with the control group.

- **Dudas, Bookwalter, Kerr, Pantilat (2001) The Impact of Follow-up Telephone Calls to Patients After Hospitalization [Table 1, p. 57]**

  Dudas et *al.* undertook a randomised controlled trial of discharge planning with support from a pharmacist to improve patient satisfaction and outcomes. Patients in the intervention group received a follow-up phone call two days after discharge to discuss medication management. The phone call gave pharmacists the opportunity to resolve medication-related problems in 15 of 52 patients. 12 patients had new medical problems. The intervention group had a lower rate of readmission within 30 days (10%) than the usual care group (24%).

3.2.5 Patient characteristics

- **Balaban, Weissman, Samuel, Woolhandler (2008) Redefining and Redesigning Hospital Discharge to Enhance Patient Care: A Randomized Controlled Study [Table 1, p. 55]**

  Balaban *et al.* administered a user-friendly, electronically transferrable 'Patient Discharge Form to an intervention group of Culturally and Linguistically Diverse (CALD) patients. Results from this study demonstrated an improvement in discharge follow-up rates for CALD patients in the intervention group

- **Witherington, Pirzada, Avery (2008) Communication Gaps and Readmissions to Hospital for Patients Aged 75 Years and Older: Observational Study [Table 3, p. 66]**

  Witherington *et al.* undertook a retrospective study to identify communication gaps at hospital discharge for patients aged 75 years and over who were readmitted within 28 days. Results found that 28% of patients returned within three days of discharge and 44% within seven days. 62% of patients had no discharge letter, or returned before the letter was processed. Results also demonstrated that medication information and documentation was incomplete in two-thirds of all discharge documentation. 41% of readmissions were medication-related, and 21% of these were preventable. [Note: this paper was found to be relates to a number of themes and so is repeated within each relevant theme area]

3.3. Current Practices, Interventions, Critical Success Factors and Effectiveness in Discharge

This section presents and discusses the major themes, issues and results identified within the literature pertaining to current practices, interventions, critical success factors and

effectiveness. The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

The **major evidence based themes** identified in the literature relating to Current Practices, Interventions, Critical Success Factors and Effectiveness in discharge can be summarised as follows:

- **Discharge summary requirements and expectations:** the literature points to differences between GPs and hospital physicians over the preferred format of discharge summaries.
- **Evaluation of discharge performance:** the literature points to poor communication and follow-up at the time of patient discharge. These deficits increase the risk of adverse events.
- **Evaluation of discharge summaries:** the literature points to long-standing issues with the quality of discharge summaries; the four key issues impacting the use and performance of discharge summaries are: quality; timeliness of delivery and receipt; accuracy; and completeness.
- **Effectiveness of discharge summary options:** the literature points to key problems associated with the use of either electronic or handwritten discharge summaries.
- **eDischarge:** the literature provides conflicting evidence about the ability of standardised electronic discharge summaries to improve the delivery, receipt and quality of discharge summaries from hospitals general practitioners and primary care physicians.
- **Impact on patient outcomes:** the literature provides mixed evidence about the clinical impact of interventions to improve continuity of care.
- **Rapid communication:** the literature points to benefits from the use of brief prompt discharge summaries to communicate patient information between hospitals and general practitioners.
- **Nursing discharge:** the literature points to uncertainty about the role of nurses in the discharge planning process; training and professional development may be needed to further develop and enhance this role.
- **Discharge planning:** the literature provides evidence of the benefits of discharge planning on patients' health outcomes, particularly discharge planning undertaken by multidisciplinary care coordination teams. The literature also points to the common issues and challenges in carrying out effective discharge planning, such as the communication barriers between internal and external health care providers.
- **Discharge from emergency departments:** the literature points to a disparity between the views of emergency department healthcare providers and community physicians about the flow of information at discharge. The literature also points to potential benefits if patients are discharged directly from emergency department triage.
- **Medication reports:** the literature provides evidence of better patient outcomes from the use of structured communication about medications, such as medication checklists and integrated discharge prescription forms, at the time of discharge.
- **Post-hospital support:** the literature provides evidence that support programs and strategies such as community pharmacist involvement and an early discharge rehabilitation service can improve patient outcomes after discharge, and reduce unplanned readmissions.
- **Enhanced communication:** the literature points to a range of practices which can improve patient outcomes after discharge, including reviews of medical records and audits of discharge summaries. Literature also points to the feasibility of implementing improved discharge summary formats for particular groups of patients.

- **Care transition measures:** the literature points to a number of tools which can use data from medical records and discharge summaries to measure the quality of care transitions and healthcare outcomes for patients moving between providers.
- **Data:** the literature points to a number of options for using data from medical records and electronic discharge summaries to assess discharge performance, and improve the quality of discharge planning and patient outcomes after discharge.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

3.3.1 Discharge summary requirements and expectations

- **Hopcroft, Calvely (2008) What Primary Care Wants From Hospital Electronic Discharge Summaries – A North/West Auckland Perspective [Table 8, p. 87]**

  Hopcroft and Calvely undertook focus groups and online questionnaires of GPs from North and West Auckland and found that 72% of GPs are satisfied with the current level of detail provided by the electronic discharge summary, while one-fifth of respondents agreed that summaries included too much detail. Three main themes emerged from the free-text comments. Electronic discharge summaries were: poorly formatted; contained too much information about medical tests; and needed more information in other areas, such as medical history.

- **van Walraven, Rokosh (1999) What is Necessary for High-Quality Discharge Summaries? [Table 8, p. 93]**

  van Walraven and Rokosh surveyed hospital and family physicians to gauge their perceptions of what constitutes a high-quality discharge summary. Results showed that both groups of physicians preferred complete information for content with limited scope, but preferred only relevant data on items where the details were potentially involved and in-depth. Family physicians preferred faster delivery and shorter discharge summaries than their hospital counterparts. Results also demonstrated that family physicians wanted more information on discharge summaries.

3.3.2 Evaluation of discharge performance

- **Arora, Prochaska, Farnan, D'Arcy, Schwanz, Vinci, Davis, Meltzer, Johnson (2010) Problems After Discharge and Understanding of Communication with their Primary Care Physician (PCPs) Among Hospitalized Seniors: A Mixed Methods Study [Table 8, p. 80]**

  Arora *et al.* found that PCPs are often unaware of their patients' hospital admission. Older patients whose PCPs were unaware of their hospitalisation were more likely to experience at least one post-discharge problem, which was complicated by a lack of communication between hospitals and PCPs.

- **Le Doare, Benerjee, Oldfield (2009) Written Communication Between General Practitioners and Hospitals: An Analysis [Table 8, p. 88]**

  Le Doare *et al.* undertook a retrospective study of patient referral letters and paired discharge summaries for all patients admitted to hospital following referral by their GP. Results showed that 58% of patients' referral letters to the accident and emergency department were missing from the medical record. Of the 773 referrals to ED, only 37% had a paired GP referral letter and discharge summary. Of the discharge summaries, two-thirds were handwritten, and 96% of those were legible. Half of the discharge diagnoses matched that given by the referring GP.

- **Perren, Previsdomini, Cerutti, Soldini, Donghi, Marone (2009) Omitted and Unjustified Medications in the Discharge Summary [Table 8, p. 91]**

  Perren *et al.* undertook a three-month prospective observational review of discharge summaries from an internal medicine unit. Results from the study indicated that 34% of discharge summaries sampled were error-free. The remaining 66% had a total of 1,012 inconsistencies. Of those, 19% were considered harmful. The study also found 393 drug omissions, of which 58% were not defendable, and 32% had the potential for harm.

- **Singh, Thomas, Mani, Sittig, Arora, Espadas, Kham, Petersen (2009) Timely Follow-up of Abnormal Diagnostic Imaging Test Results in an Outpatient Setting: Are Electronic Medical Records Achieving Their Potential? [Table 8, p. 91]***

  Sing *et al.* tracked the receipt of test results within two weeks of transmission, followed by a review of electronic health records to assess follow-up actions. Results demonstrated that almost one-fifth (18%) of all diagnostic tests were unacknowledged. Test results have a higher risk of being unacknowledged when the ordering healthcare professionals were trainees. Results also showed that almost all follow-up tests that were deemed 'critical' were often ignored, when acknowledged by health care professionals as being read.

- **Roy, Poon, Karson, Ladak-Merchant, Johnson, Maviglia, Gandhi (2005) Patient Safety Concerns Arising From Test Results That Return After Hospital Discharge [Table 8, p. 91]**

  Roy *et al.* found in their study that 41% of patients' test results were returned after discharge and of these 9% to 11% were actionable. Results from surveys of primary care physicians showed that 66% of physicians were unaware that their patients' test results were ready. Of the actionable test results, physicians agreed with the research team that 12% of them required urgent action.

- **Forster, Murff, Peterson, Gandhi, Bates (2003) The Incidence and Severity of Adverse Events Affecting Patients After Discharge from the Hospital [Table 8, p. 85]**

  Forster *et al.* undertook a prospective cohort study of patients after discharge by reviewing medical records and conducting structured interview with patients three weeks after discharge. Results from this study demonstrated that nearly one fifth of patients experienced an adverse event during the transition from hospital to home. One third of these events were preventable, and another third ameliorable; the remainder were unavoidable, but their severity could have been decreased.

- **McKenna, Keeney, Glenn, Gordon (2000) Discharge Planning: An Exploratory Study [Table 8, p. 88]**

  McKenna *et al.* administered a questionnaire to, and undertook interviews with to, both hospital and community-based nurses. They found that there was a large discrepancy between the views of hospital and community-based nurses. Half of hospital nurses stated that the patient is always referred the relevant agency, or that patients are always given relevant contact details. In contrast, only one community nurse agreed that was the case. These discrepancies were mirrored in other questions such as discharge communication timeliness: 55% of hospital nurses stated that the discharge communiqué was dispatched on the day of discharge while only 27% of community nurses agreed.

3.3.3 Evaluation of discharge summaries

- **Callen, McIntosh, Li (2009) Accuracy of Medication Documentation in Hospital Discharge Summaries: A Retrospective Analysis of Medication Transcription Erors in Manual and Electronic Discharge Summaries [Table 8, p. 82]***

  Callen *et al.* conducted a retrospective study of handwritten and electronically generated discharge summaries from an Australian hospital. Results showed that there is an almost equal distribution of error between handwritten and transcribed discharge summaries. Also, junior doctors and senior doctors are equally likely to make transcription errors.

- **Gandara, Moniz, Ungar, Lee, Chan-Macrae, O'Malley, Schnipper (2009) Communication and Information Deficits in Patients Discharged to Rehabilitation Facilities: An Evaluation of Five Acute Care Hospitals [Table 8, p. 86]**

  Gandara *et al.* undertook an evaluation of the quality of discharge summaries and the transfer of information for patients discharged from five acute care hospitals to rehabilitation facilities. Results from found a high level of information missing from discharge documentation. There were discrepancies between preadmission and discharge medication regimes; poorer levels of documentation and 'completeness' amongst academic hospitals compared to community

hospitals; and a lack of documentation of medication for patients discharged from surgical services.

- **Were, Li, Keterson, Cadwallader, Asirwa, Khan, Rosenman (2009) Adequacy of Hospital Discharge Summaries in Documentation Tests with Pending Results and Outpatient Follow-up Providers [Table 8, p. 94]**

  Were *et al.* undertook a retrospective study to determine the adequacy of discharge summaries from a North American hospital in detailing follow-up tests and pending results. Results from the study concluded that discharge summaries cannot be used an indicator of outstanding or pending medical tests. Half of the discharge summaries named the primary care physician responsible for the patient. Fewer than half (48%) of pending tests returned with actionable results had information about the PCP.

- **Bell, Schnipper, Auerbach, Kaboli, Wetterneck, Gonzales, Arora, Zhang, Meltzer (2008) Association of Communication Between Hospital-based Physicians and Primary Care Providers with Patient Outcomes [Table 8, p.81]**

  Bell *et al.* surveyed primary care physicians (PCPs) after hospital discharge. And found that more than half of the PCPs did not receive a discharge summary of their patient's acute care admission within two weeks and almost one-quarter did not know their patient was admitted at all.

- **Naidu, Rejavelu, Rajogopalan (2008) Preformatted Written Discharge Summary-A Step Towards Quality Assurance in the Emergency Department [Table 8, p. 89]**

  Naidu et al. audited the use of a standardised preformatted form for discharge summaries for patients discharged from an emergency department in India. They found that the legibility of discharge summaries was particularly high in the diagnostic, medication and post-discharge care instructions. Results also found that 83% of discharge summaries were missing test results and date of birth was absent from all discharge summaries.

- **Alderton, Callen (2007) Are General Practitioners Satisfied with Electronic Discharge Summaries? [Table 8, p. 79]***

  Alderton and Callen found more than three-quarters of GPs surveyed were satisfied or very satisfied with the information recorded on the discharge summary about intervention, treatment and on-going management, although some GPs gave a 'neutral' or 'unsatisfied/very unsatisfied' response. Other literature had suggested there were issues with the delivery of electronic discharge summaries, but this study found that summaries were delivered to GPs within a reasonable timeframe.

- **Garasen, Johnsen (2007) The Quality of Communication About Older Patients Between Hospital Physicians and General Practitioners: A Panel Study Assessment [Table 8, p. 86]**

  Garasen and Johnsen reviewed the discharge and referral letters of 100 patients aged 75 years and over in Norway. Results from the study found that about that one-fifth of all discharge letters in the sample were missing vital information. There was also a lack of information about who was responsible for follow-up care in 25% of discharge summaries. Results from the study demonstrated that physicians' letters were generally of a poor standard, and contributed to inappropriate care.

- **Chow, Szeto (2006) Secular Trends in the Medical Discharge Summary in an Acute Medical Hospital [Table 8, p. 83]**

  Chow and Szeto undertook a retrospective audit of discharge summaries sampled from a ten-year period. Results from the study demonstrated a number of secular trends, including an increasing length of discharge summary notes between 1994 and 2005. Also during this period, duplication of discharge planning documentation also increased.

- **O'Leary, Leibovitz, Feinglass, Liss, Baker (2006) Outpatient Physicians' Satisfaction with Discharge Summaries and Perceived Need for an Electronic Discharge Summary [Table 8, p. 90]**

  O'Leary *et al.* surveyed outpatient physicians and found that only 19% of physicians were satisfied with the timeliness of discharge summaries; 33% of participants indicated that more than half of their patients come for consultations before the discharge summary has arrived. A

third were satisfied with the quality of discharge summaries and 17% believed that discharge summaries often missed critical information.

- **Jansen, Grant (2003) Communication with General Practitioners After Accident and Emergency Attendance: Computer Generated Letters Are Often Deficient [Table 8, p.87]***

  Jansen and Grant undertook a retrospective study of 300 electronic discharge summaries to assess their quality. Results showed that 29% of all discharge summaries were incomplete or misleading. One-quarter of all summaries were lacking detail, or unacceptable overall. Results also demonstrated that almost half of all discharge summaries included inaccurate or wrongly coded diagnoses.

- **Payne, Kerr, Hawker, Hardey, Powell (2002) The Communication of Information About Older People Between Health and Social Care Practitioners [Table 8, p. 90]**

  Payne et al. reviewed literature on the communication and transfer of information about older patients between social and health care providers. Results from the review demonstrate that appropriate information is often not reported on discharge to community nurses and social services (One paper reviewed found that 18% of discharge summaries never arrived). The review also found that discharge information, when provided, was 'too little and too late'.

- **van Walraven, Seth, Laupacis (2002) Dissemination of Discharge Summaries: Not Reach Follow-up Physicians [Table 8, p. 93]**

  van Walraven *et al.* surveyed general practitioners and found that only 15 percent of discharge summaries were available for follow-up visits. Summaries were often not available because over half of them were sent to the wrong GP.

- **Wilson, Ruscoe, Chapman, Miller (2001) General Practitioner-hospital Communications: A Review of Discharge Summaries [Table 8, p. 95]***

  Wilson *et al.* undertook a retrospective study of discharge summaries sent from a NSW-based hospital to general practitioners to examine their production, quality, timeliness and accuracy. Patients' general practitioners were interviewed following the discharge. Results demonstrated that only 27.1% of discharge summaries were received by general practitioners. Almost a third of all discharge summaries received contained errors and inaccuracies, such as medication errors (omissions) and a lack of information about follow-up tests.

- **Paterson, Allega (1999) Improving Communication Between Hospital and Community Physicians: Feasibility Study of Handwritten, Faxed Hospital Discharge Summary [Table 8, p. 90]**

  Paterson and Allegra audited hospital discharge summaries and found that that 8% of records did not list a family physician, and of those that did, 20% did not identify a fax number. 83% of summaries were received within three weeks of discharge. Amongst those, 86% were received within 48 hours; 92% were legible and 88% were complete.

- **Bolton, Mira, Kennedy, Lahra (1998) The Quality of Communication Between Hospitals and General Practitioners: An Assessment [Table 8, p. 81]***

  Bolton *et al.* found that a majority of GPs wanted to be notified of their patient's discharge from hospital, or death in hospital. A telephone call was the preferred method for death or transfer, but GPs expected a letter on discharge. Results also demonstrated that half of the discharge summaries had contact details, such as address and telephone number of the patient's GP.

- **van Walraven, Weinberg (1995) Quality Assessment of a Discharge Summary System [Table 8, p. 94]**

  van Walraven and Weinberg undertook a descriptive study to assess the completeness of hospital discharge summaries and the efficiency of the system in two Canadian teaching hospitals. They found that 42.9% of summaries did not include significant tests or results. The proportion of summaries missing data elements ranged from less than 1% to 35%. Fewer than half (49.1%) of summaries were received by the family physician.

3.3.4 Effectiveness of discharge summary options

- **Chen, Brennan, Magrabi (2009) Is Email an Effective Method for Hospital Discharge Communication? A Randomized Controlled Trial to Examine Delivery of Computer-generated Discharge Summaries by Email, Fax, Post and Patient-hand Delivery [Table 6, p. 69]***

  Chen *et al.* undertook a randomised controlled trial of an electronic discharge communiqué using different methods of communication: e-mail, fax, post and patient-hand delivery. Results from the study demonstrated that fax and e-mail methods of delivery were more effective. Between 69% and 74% of all discharge summaries that were faxed or e-mailed were received within one week of discharge. Results also demonstrated that, within the sample, GPs' use of computers for clinical purposes was relatively low.

- **Maslove, Leiter, Griesman, Arnott, Mourad, Chow, Bell (2009) Electronic versus Dictated Hospital Discharge Summaries: A Randomized Controlled Trial [Table 6, p. 72]**

  Maslove *et al.* undertook a randomised controlled trial to assess satisfaction of primary care physicians (PCPs) with an electronic discharge summary (EDS) program, and with conventionally dictated discharge summaries. Results showed that there was no significant difference in PCP satisfaction with quality, completeness, organisation or timeliness between the EDS and dictated discharge summary groups. There was no statistically significant difference between patients in the two groups who needed follow-up tests or appointments, or in patient satisfaction with the use of either summary.

- **Callen, Alderton, McIntosh (2008) Evaluation of Electronic Discharge Summaries: A Comparison of Documentation in Electronic and Handwritten Discharge Summaries [Table 8, p. 82]***

  Callen *et al.* compared the quality of electronic and handwritten inpatient discharge summaries from a sample of 245 handwritten and electronic summaries. Results from the study demonstrated that electronic discharge summaries were more likely to contain errors than handwritten summaries. The results also demonstrated that differences in error rate between the two groups were significantly associated with particular doctors completing the discharge summaries. In electronic discharge summaries, fields such as discharge date and additional diagnoses were often missing or incomplete.

- **van der Kam, de Jong, Tromp, Moorman, van der Lei (2001) Effects of Electronic Communication Between GP and the Pharmacist: The Quality of Medication Data on Admission and After Discharge [Table 8, p. 92]**

  van der Kam *et al.* compared a group of GPs and pharmacists who used electronic communication with GPs and pharmacists who did not. Results from the study demonstrated that there was no significant difference between the electronic or paper-based group after discharge. The study also reported that patients do not report over the counter drugs.

- **van Walraven, Laupacis, Seth, Wells (1999) Dictated versus Database-Generated Discharge Summaries: An Randomized Clinical Trial [Table 6, p. 75]**

  van Walraven *et al.* undertook a randomised clinical trial to compare dictated discharge summaries with database-generated summaries. Results from the study demonstrated that the two groups had very similar outcomes. Database patients' discharge summaries were more likely to be received within four weeks of discharge than those in the dictation group. More data elements were likely to be included in the database-generated group. The database system also produced summaries more efficiently.

3.3.5 eDischarge

- **Melby, Hellesø (2010) Electronic Exchange of Discharge Summaries Between Hospital and Municipal Care from Health Personnel's Perspectives [Table 8, p. 89]**

  Melby and Hellesø found that the electronic discharge summary improved workflow, and helped community care staff to interact with patients from the hospital sector. The use of

electronic discharge summaries was also found to increase the legibility of discharge summaries.

- **Graumlich, Novotny, Nace, Aldag (2009) Patient and Physician Perceptions After Software-assisted Hospital Discharge: A Cluster Randomized Trial [Table 6, p. 71]**

  Graumlich *et al.* undertook a randomised controlled trial of hospital computer physician order entry (CPOE) software to improve discharge communication and clinical outcomes. They found that there was a small increase in the positive perception of the discharge process using the CPOE software amongst patients and outpatient physicians. Results also demonstrated that primary care physicians prefer electronically generated discharge summaries in standardised formats.

- **O'Leary, Leibovtiz, Feignlass, Liss, Evans, Kulkarni, Landler, Baker (2009) Creating a Better Discharge Summary: Improvement in Quality and Timeliness Using an Electronic Discharge Summary [Table 7, p. 77]**

  O'Leary *et al.* evaluated the introduction an electronic discharge summary system. Results from the intervention demonstrated that physician satisfaction with the timeliness and quality of the discharge summary after the implementation was significantly higher than for dictated discharge summaries. The number of dictated discharges dropped from 47.5% to 10.5%.

- **Schabetsberger, Ammenwerth, Andreatta, Gratl, Haux, Lechleitner, Schindelwig, Stark, Vogl, Wilhelmy, Wozak (2006) From a Paper-Based Transmission of Discharge Summaries to Electronic Communication in Health Care Regions [Table 7, p. 79]**

  Schabetsberg et *al.* developed a secure web portal system where electronic discharge summaries could be sent and received from. Results from the implementation of the electronic discharge demonstrated that 6-8% of all of the discharge summaries were being sent via the new system. The study also found a number of GPs who were unable to import the discharge summaries, which highlighted the need for standardisation of discharge summaries across providers.

3.3.6 Impact on patient outcomes

- **van Walraven, Oake, Jennings, Forster (2010) The Association Between Continuity of Care and Outcomes: A Systematic and Critical Review [Table 8, p. 93]**

  van Walraven *et al.* undertook a systematic and critical review of studies to determine the association between continuity of care and patient outcomes. Results demonstrated that 18 of the studies selected for review demonstrated a very high association between the continuity of care and patient health outcomes, particularly when continuity of care is carried across health providers. The studies also demonstrated a very high association between continuity of care and patient satisfaction.

- **Halasyamani, Kripalani, Coleman, Schipper, van Walraven, Nagamine, Torcson, Bookwalter, Budnitz, Manning (2006) Transition of Care for Hospitalized Elderly Patients – Development of a Discharge Checklist for Hospitals [Table 8, p. 87]**

  Halayamani *et al.* developed a discharge checklist for adult patients, based on a literature review of all materials relating to discharge. Results from the review identified a number of key elements integral to the discharge process: key findings, test results, condition at discharge, medications, and follow-up appointments. These elements were incorporated into a checklist, and validated by 120 practising hospitalists, nurses, case managers and social workers.

- **van Walraven, Mamdani, Fang, Austin (2004) Continuity of Care and Patient Outcomes After Hospital Discharge [Table 8, p. 93]**

  van Walraven *et al.* undertook a cohort study of patients discharged from hospital to assess whether early post-discharge outcomes are changed when patients are seen after discharge by the physicians who had treated them in hospital. The study demonstrated that patients who were seen by the physicians who treated them in hospital were less likely to die, or to get urgently readmitted to hospital.

3.3.7 Rapid communication

- **Pillai, Thomas, Garg (2004) The Electronic Immediate Discharge Document: Experience from the South West of Scotland [Table 8, p. 91]**

  Pillai *et al.* surveyed Scottish general practitioners' attitudes to electronic immediate discharge documents (e-IDD). Results showed that a majority of GPs still relied on the mail-out discharge summary in conjunction with the e-IDD. 30% of GPs felt that the information on the e-IDD was sufficient; 50% felt that the information on medications was insufficient; and, 73% felt that there was little information provided about patient follow-up.

- **Foster, Paterson, Fairfield (2002) Evaluation of Immediate Discharge Documents - Room for Improvement? [Table 8, p. 85]**

  Foster *et al.* audited 244 Immediate Discharge Documents (IDDs), a tool used to communicate patient discharge information from hospitals to general practitioners. They found that up to 30% of basic administrative data, (such as contact details) was missing from the documentation, while diagnosis or condition information was missing from 13%. 60% of IDDs were received within five days of discharge. Only 51% of formal typed discharge summaries arrived within four weeks.

3.3.8 Nursing discharge

- **Hellesø (2006) Information Handling in the Nursing Discharge Note [Table 8, p. 87]**

  Hellesø investigated nurses' use of language in nursing discharge notes and the completeness, structure and content between paper and electronic discharge notes. Results showed that the use of language in both paper-based and electronic discharge nursing notes is dense, and laden with nursing terminology. Hellesø also found that electronic discharge note templates enabled nurses to be more specific and focused in their patient assessments.

- **Hellesø, Sorensen, Loresen (2005) Nurses' Information Management of Patients' Discharge From Hospital to Home [Table 7, p. 76]**

  Hellesø *et al.* undertook a prospective study of both hospital and home care nurses' management of information on discharge before and after the implementation of an electronic patient record (EPR) system. They found that satisfaction with the discharge planning process marginally improved from 96% to 98% satisfied with the use of the EPR. The nursing care plan was used less after the implementation of the EPR.

- **Watts, Gardner (2005) Nurses' Perceptions of Discharge Planning [Table 8, p. 94]***

  Watts *et al.* undertook interviews with nursing staff and found that nurses were commonly involved in the discharge planning process, but levels of involvement differed amongst interviewees. The majority of interviewees believed that nurses coordinated the discharge planning process. Participants also expressed the importance of patients in enhancing or in some cases, impeding the discharge planning process.

- **Atwal (2002) Nurses' Perceptions of Discharge Planning in Acute Health Care: A Case Study in One British Teaching Hospital [Table 8, p. 80]**

  Atwal used a case study approach and observations to describe nurses' perceptions of the hospital discharge process, using the critical incident approach. Results from the study demonstrated that there was an absence of inter-professional education and training about discharge processing or planning. Junior nursing staff often did not understand or know how to carry out discharge planning.

3.3.9 Discharge planning

- **Connolly, Grimshaw, Dodd, Cawthorne, Hulme, Everitt, Tierney, Deaton (2009) Systems and People Under Pressure: The Discharge Process in an Acute Hospital [Table 8, p. 83]**

  Connolly *et al.* undertook a series of focus groups conducted amongst hospital-based health professionals (nurses, allied health staff, social workers and a physician) to understand the discharge planning process in a British hospital. Results from the study demonstrated that health care professionals are faced with many challenges, particularly when discharging a complex patient. These challenges are further exacerbated by: a lack of care co-ordination; communication barriers with internal colleagues and external healthcare providers.

- **Auslander, Soskolne, Stranger, Ben-Shahar, Kaplan (2008) Discharge Planning in Acute Care Hospitals in Israel: Services Planned and Levels of Implementation and Adequacy [Table 8, p. 80]**

  Auslander *et al.* implemented the discharge planning process in 11 Israeli hospitals. Results showed that discharge planning was largely successful across these different types of patients and hospitals. Failed discharge planning was attributed to the 'fragmented nature of the health care system in Israel' where the personal needs and household-related services of the discharge planning process were largely unmet.

- **Preen, Bailey, Wright, Kendall, Phillips, Hung, Hendriks, Mather, Williams (2005) Effects of a Multidisciplinary, Post-Discharge Continuance of Care Intervention on Quality of Life, Discharge Satisfaction and Hospital Length of Stay: A Randomized Controlled Trial [Table 6, p. 73]***

  Preen *et al.* undertook a randomised controlled trial of patients to determine the impact of multidisciplinary hospital-coordinated discharge care plans on length of stay, quality of life, and patient and general practitioner satisfaction with the discharge planning process. Results from the study demonstrated that patients in the intervention group were significantly more satisfied with the discharge planning process than those in the control/usual care group. Results also demonstrated that the time for hospitals to contact general practitioners was lower in the intervention group. General practitioners reported that a third of all discharge summaries received contained errors, and that only 27% are received at all.

- **Moss, Flower, Houghton, Moss, Nielsen, Taylor (2002) A Multidisciplinary Care Coordination Team Improves Emergency Department Discharge Planning Practice [Table 7, p. 77]***

  Moss *et al.* discusses the implementation of a multidisciplinary care coordination team (CCT) to improve the discharge planning process, and to ensure that patients were provided with access to and information about community services. Results from the study demonstrated that the rate of hospital admission from the emergency department fell significantly when compared to the 12-month period before the CCT was implemented. Surveys with stakeholders also responded positively to the CCT implementation.

- **Bull, Roberts (2001) Components of a Proper Hospital Discharge for Elders [Table 8, p. 82]***

  Bull and Roberts undertook a qualitative study of healthcare professionals to identify components of effective discharge planning for older persons. Results from this study demonstrated that a multidisciplinary team is effective for coordinating discharge planning.

- **Nazareth, Burton, Shulman, Smith, Haines, Timberall (2001) A Pharmacy Discharge Plan for Hospitalized Elderly Patients—A Randomized Control Trial [Table 6, p. 73]**

  Nazareth *et al.* used a "Patient Discharge Form" and pre-discharge medication review to improve medication management in elderly hospitalised patients. Results from the intervention demonstrated no significant difference between coordinated hospital and community pharmacy care discharge plans and standard routine discharge plans. [Note: this paper was found to be related to a number of themes and so is repeated within each relevant theme area]

- **Rutherford, Burge (2001) General Practitioners and Hospitals: Continuity of Care [Table 6, p. 74]***

  Rutherford and Burge undertook a randomised controlled trial to improve the continuity of care for patients by increasing general practitioner contact, and providing a comprehensive discharge summary. They found that 52% of GPs will visit patients in hospital if invited to participate in discharge planning. The study also found that 30% of GPs reported telephoning the hospital to enquire about their patient. This number increased to 80% when an invitation and payment for services was offered. 92% of patients had contact with their GP after discharge.

3.3.10 Discharge from emergency departments

- **Dunnion, Kelly (2005) From the Emergency Department to Home [Table 8, p. 84]**

  Dunnion and Kelly surveyed the perceptions and attitudes of staff in the emergency department and primary care. Results showed that primary care staff reported that the level of communication from ED to primary care was unsatisfactory; in contrast, hospital staff reported much higher levels of communication. Both staffing groups agreed that communication could be improved through the use of a variety of informal and formal measures, such as telephone, fax, and legible discharge summaries.

- **Stiell, Forster, Stiell, van Walraven (2005) Maintaining Continuity of Care: A Look at the Quality of Communication between Ontario Emergency Departments and Community Physicians [Table 8, p. 92]**

  Stiell *et al.* undertook a survey of emergency department chiefs to determine the most common method of disseminating patient information to community-based physicians. Results from the survey demonstrated that post was the most common method of delivery, followed by physicians' hospital mailboxes. ED chiefs perceived that their system of communication was either excellent or satisfactory. Views about methods to improve communication systems in the ED focused on the use of electronic systems to deliver patient information.

- **Cooke, Arora, Mason (2003) Discharge from Triage: Modelling the Potential in Different Types of Emergency Department [Table 8, p. 84]**

  Cooke *et al.* undertook a prospective study to develop a model for discharge of patients directly from emergency department triage after a clinical assessment. Results from the study demonstrated that between 20% and 37% of patients seen at the four chosen EDs did not use any ED resources except examination and advice. Furthermore, those patients could be treated in pre-hospital settings (GPs, clinics) or at the triage desk.

3.3.11 Medication reports

- **Bergkvist, Midlöv, Höglund, Larsson, Bondersson, Eriksson (2008) Improved Quality in the Hospital Discharge Summary Reduces Medication Errors-LIMM: Landskrona Integrated Medicines Management [Table 6, p. 69]**

  Bergkvist *et al.* undertook a randomised controlled trial using a medication management model (tools, activities for medication reconciliation and review). Results from the study found that patients in the intervention group on average had a few medications. The proportion of patients without medication errors was higher in the intervention group (73.5%) compared with the control group (63.5%), however the increase was not significant (P=0.319).

- **Midlöv, Deierborg, Holmdahl, Höglund, Eirksson (2008) Clinical Outcomes from the Use of Medication Report when Elderly Patients are Discharged from Hospital [Table 7, p. 77]**

  Midlöv *et al* undertook a randomised controlled trial to investigate whether the use of a Medication Report can reduce the number of adverse events related to medication errors post-discharge. Results from the study demonstrated that the use of the Medication Report significant reduced the risk of adverse consequences related to medication.

- **Midlöv, Holmdahl, Eriksson, Bergkvist, Ljungberg, Widner, Nerbrand, Höglund (2008) Medication Report Reduces Number of Medication Errors When Elderly Patients are Discharged From Hospital [Table 7, p. 77]**

  Midlöv *et al*. used a medication report as an intervention measure to reduce the overall number of medication errors amongst elderly patients discharge from hospital. Results from the study demonstrated that 32% of patients from the intervention group had at least one error, compared with 66% of the control group. 15% of patients in the intervention group had errors considered be of moderate to high risk, compared with 32% in the control group.

- **Paquette-Lamontagne, McLean, Besse, Cusson (2001) Evaluation of a New Integrated Discharge Prescription Form [Table 7, p. 78]**

  Paquette-Lamontagne *et al.* used a new discharge prescription form (PDF) which integrates admission medications, in-hospital changes and discharge medications. Results from the implementation of the DPF found a decrease of errors in the number of medications started during hospitalisation, but not prescribed at admission. There was also an observed reduction of errors in the number of medications having a dosage change during hospitalisation. Results of a survey of community pharmacists and GPs found that both physicians and in particularly pharmacists were enthusiastic about the DPF and recognised its benefits in ensuring medication conformity.

3.3.12 Post-hospital support

- **Jack, Chetty, Anthony, Greenwald, Sanchez, Johnson, Forsythe, O'Donnell, Paasche-Orlow, Manasseh, Martin, Culpepper (2009) A Reengineered Hospital Discharge Program to Decrease Rehospitalization [Table 6, p. 71]**

  Jack *et al.* undertook a randomised controlled trial to test the effects of an intervention program designed to minimise hospital utilisation after discharge. They found that patients in the intervention group had a lower rate of hospital utilisation than those receiving usual care. However, patients in the intervention group reported a higher number of visits to their primary care physician.

- **Koehler, Richter, Youngblood, Cohen, Prengler, Cheng, Masica (2009) Reduction of 30-day Postdischarge Hospital Readmission on Emergency Department (ED) visit Rates in High-risk Elderly Medical Patients Through Delivery of a Targeted Care Bundle [Table 6, p. 72]**

  Koehler *et al.* undertook a randomised controlled trial to assess the impact of a 'supplemental care bundle' on hospital readmission rates for elderly. Results from the study found that the supplemental care bundle decreased unplanned readmissions within 30 days of discharge; however, readmission rates between 30-60 days amongst the intervention group were significantly higher in the intervention group and comparable with the control group.

- **Cunliffe, Gladman, Husbands, Miller, Dewey, Harwood (2004) Sooner and Healthier: A Randomized Controlled Trial and Interview Study of An Elderly Discharge Rehabilitation Service for Older People [Table 6, p. 70]**

  Cunliffe et al. undertook a randomised controlled trial of early discharge and rehabilitation support for older persons using a sample of 370 patients from general and surgical wards patients were randomised across the intervention and 'usual care' groupings. Results showed that patients randomised the EDRS group had better health outcomes and few days in hospital than their usual care counterparts. Results from the qualitative component of the study revealed that person-centred care after early discharge impacted upon health outcomes and patient satisfaction.

- **Dudas, Bookwalter, Kerr, Pantilat (2001) The Impact of Follow-up Telephone Calls to Patients After Hospitalization [Table 6, p. 70]**

  Dudas et *al.* undertook a randomised controlled trial of discharge planning with support from a pharmacist to improve patient satisfaction and outcomes. Patients in the intervention group received a follow-up phone call two days after discharge to discuss medication management. The phone call gave pharmacists the opportunity to resolve medication-related problems in 15 of 52 patients. 12 patients had new medical problems. The intervention group had a lower rate of readmission within 30 days (10%) than the usual care group (24%).

- **Nazareth, Burton, Shulman, Smith, Haines, Timberall (2001) A Pharmacy Discharge Plan for Hospitalized Elderly Patients - A Randomized Control Trial [Table 6, p. 73]**

  Nazareth *et al.* used a "Patient Discharge Form" and pre-discharge medication review to improve medication management in elderly hospitalised patients. Results from the intervention demonstrated no significant difference between coordinated hospital and community pharmacy care discharge plans and standard routine discharge plans. [Note: this paper was found to be related to a number of themes and so is repeated within each relevant theme area]

3.3.13 Enhanced communication

- **Morris, Chen (2005) Enhancing Communication Between Hospital and Community: Multidisciplinary Discharge Case Conferences [Table 8, p. 89]***

  Morris and Chen discuss the use of conferencing as a process to improve the dialogue between the two groups. Results from multidisciplinary discharge case conferences highlighted a need for better written communication between providers to resolve errors and issues on discharge summaries, particularly the reason for medication changes made in the hospital setting.

- **Pagliari, Donnan, Mirrison, Ricketts, Gregor, Sullivan (2005) Adoption and Perception of Electronic Clinical Communications in Scotland [Table 7, p. 78]**

  Pagliari *et al*. discusses implementation, use and perceptions of the Electronic Clinical Communications Implementations (ECCI) Programme in Scotland. Results from the study identified a number of benefits: the system facilitated primary care users' ability to access results after the completion of tests, and improved data quality, legibility and delivery on discharge letters.

- **Crossan, Curtis, Ong (2004) Audit of Psychiatric Discharge Summaries: Completing the Cycle [Table 8, p. 84]**

  Crossan *et* al. undertook an audit of psychiatric discharge summaries in an adult psychiatric unit. Results from the study demonstrated that information pertaining to follow-up tests and medical history was lacking. The authors suggest that senior clinicians should train junior staff and trainees, and regularly audit discharge summaries.

- **Forster, Clark, Menard, Dupuis, Chernish, Chandok, Khan, van Walraven (2004) Adverse Events Among Medical Patients After Discharge from Hospital [Table 8, p. 85]**

  Forster *et al.* undertook an analysis of medical records and interviews with patients to detect adverse events and outcomes caused by medical care amongst patients of a Canadian general internal medicine service. Results from the study demonstrated that 23% of patients sampled in this study experienced one or more adverse event; 72% of these adverse events were medication-related.

- **Johnstone, Bagnall, Kam, Chan (2003) Discharge Summaries in Aged Care: Improving Communication Between an Aged Care Unit and General Practitioners [Table 7, p. 76]***

  Johnston *et al.* used a specifically designed discharge summary for elderly patients discharged from an aged care unit in a Sydney hospital to improve both communication between healthcare providers and the quality of discharge summaries. Results from the study demonstrated an increase in satisfaction with post-intervention discharge summaries of 57%.

- **Kossovsky, Chopard, Bolla, Sarasin, Louis-Simonet, Allaz, Perneger, Gaspoz (2002) Evaluation of Quality Improvement Interventions to Reduce Inappropriate Hospital Use [Table 7, p. 76]**

  Kossovsky *et al.* describes the implementation of changes to the admission and discharge process in a Swiss hospital to decrease the rate of inappropriate hospital admissions and inappropriate use of hospital bed days for patients awaiting discharge to a rehabilitation service. Results from the study demonstrate that the inappropriate use of hospitals/hospital beds amongst non-urgent admissions decreased, however inappropriate hospital days amongst the discharge of patients to rehabilitation did not decrease significantly.

3.3.14 Care transition measures

- **Foss, Askautrud (2010) Measuring the Participation of Elderly Patients in the Discharge Process From Hospital: A Critical Review of Existing Instruments [Table 8, p. 85]**

  Foss and Askautrud undertook a critical review of the survey instruments used in previous studies to measure the participation of elderly patients in the hospital discharge process. Results from the review highlighted only one study specifically designed to capture the discharge planning process, however this study's focus was on the transfer of information from the physician to the patient and not vice-versa.

- **van Walraven, Dhalla, Bell, Etchells, Stiell, Zarnke, Austin, Forster (2010) Derivation and Validation of an Index to Predict Early Death or Unplanned Readmission After Discharge From Hospital to Community [Table 8, p. 92]**

  van Walraven et *al.* undertook a prospective cohort study to derive and validate an index which would enable hospitals to predict a patient's risk of death or unplanned readmissions within 30 days of discharge to the community. Results from the cohort study found that of the 4,812 patients, 8% were either readmitted to hospital within 30 days or died. The study found four key variables which were associated with these two outcomes: length of stay, acuity of admission, co-morbidity of the patient, and emergency department use. The index was externally validated across 1,000,000 randomly selected patients

- **Boockvar, Liu, Goldstein, Nebeker, Siu, Fried (2009) Prescribing Discrepancies Likely to Cause Adverse Drug Events After Patient Transfer [Table 8, p. 82]**

  Boockvar *et al.* predict adverse events following prescribing errors by analysing the medical records of patients transferred between nursing homes and hospitals. Results from the study demonstrated a total number of 1,350 prescription discrepancies from the sample; of those, 65 were discrepancy-related adverse drug events.

- **Graumlich, Grimmer-Somers, Aldag (2008) Discharge Planning Scale: Community Physicians' Perspective [Table 8, p. 86]**

  Graumlich *et al.* undertook a study to validate the Modified Physician PREPARED scale to measure qualities of discharge from the outpatient physician perspective. The Modified Physician PREPARED scale is the result of Australian research that investigates approach to best practice barriers in discharge planning for older patients. Results from the paper demonstrate that the scale had acceptable internal consistency. Results also demonstrated that primary care physicians reported higher scores when they were involved in the discharge planning service and aware of community support.

- **Coleman, Smith, Frank, Eilertsen, Thiare, Kramer (2002) Development and Testing of a Measure Designed to Assess the Quality of Care Transitions [Table 8, p. 83]**

  Coleman *et al.* developed the Care Transition Measure (CTM) to assess the quality of patient-centred care during care transitions from qualitative focus groups of patients recently transition between facilities. The study found that the measure was comprehensive and validated.

3.3.15 Data

- **Avillach, Joubert, Fieschi (2008) Improving the Quality of the Coding of Primary Diagnosis in Standardized Discharge Summaries [Table 8, p. 81]**

  Avillach et al. undertook a prospective information processing model to be used for improving the quality and consistency of the coding and billing within standardised discharge summaries. The model extracts terms from medical documents, such as the ICD-10 terms used in the standardised discharge summaries, and the primary diagnosis.

- **Weissman, Schneider, Weingart, Epstein, David-Kasdan, Feibelmann, Annas, Ridley, Kirle (2008) Comparing Patient-Reported Hospital Adverse Events with Medical Record Review [Table 8, p. 94]**

  Weissman *et* al. undertook a comparison of adverse events reported in post-discharge patient interviews with those indentified by medical record review. Results from 988 patient interviews

and records found that 23% had one adverse event detected in an interview, and 11% had one identified by medical record. There was no significant correlation, however, between results featured in medical reviews and post-discharge interviews.

- **Forster, Andrade, van Walraven (2005) Validation of a Discharge Summary Term Search Method to Detect Adverse Events [Table 8, p. 84]**

  Forster *et al.* used a retrospective study to detect adverse events and poor health outcomes, drawing from a sample of 245 discharge summaries using a search engine strategy. Results from this two-stage review demonstrated that adverse events were more likely to occur in elderly patients, and in those who had a longer period in hospital.

- **Murff, Forster, Peterson, Fiskio, Heiman, Bates (2003) Electronically Screening Discharge Summaries for Adverse Medical Events [Table 8, p. 89]**

  Murff *et al.* undertook a retrospective study of 424 discharge summaries using a computerised screening tool for 'trigger words' that would indicate an adverse medical event. Discharge summaries that included any of the trigger words were forwarded to independent physicians for review. This study detected 204 adverse events in 131 patients. The most common adverse events were medication-related. The study did note, however, that it can be difficult to detect adverse using discharge summaries, because clinicians do not always report events.

3.4. Evidence Gaps in Discharge

This section presents and discusses the major themes, issues and results identified within the literature pertaining to evidence gaps in discharge. It should be noted that this section is not attempting to provide a conceptual map of existing evidence gaps on discharge rather it is presenting themes that were identified in the literature either explicitly as evidence gaps or as emerging directions for future activity and/or research.

The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

N.B. very few materials have been identified that have 'evidence gaps in discharge' as the focus of the publication and few, if any, materials clearly addressed the issue of sustainability.

The major evidence based themes identified in the literature relating to evidence gaps in discharge processes can be summarised as follows:

- **Other communication:** the evidence points to an overwhelming interest in use of the discharge summary as a communication tool for patient discharge; options such as telephone calls and email between clinicians receive scant attention.
- **Patient knowledge:** there is some evidence that enhancing the patient's knowledge and understanding of their condition and treatment can help to ensure safe transition at the end of a hospital stay. However, patient engagement is usually omitted from evaluations of discharge quality.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

3.4.1 Other communication

- **Pantilat, Lindenauer, Katz, Wachter (2001) Primary Care Physician Attitudes Regarding Communication with Hospitalists [Table 13, p. 102]**

  Pantiliat *et al.* surveyed primary care physicians (PCPs) attitudes towards communication with hospitalists. They found that PCPs overwhelmingly prefer to communicate with hospitalists on admission and discharge by telephone. Only a third of the discharge summaries which they received arrived before the patient's appointment. 84% of PCPs agreed that the discharge summaries they received were too detailed, compared to 5% who felt they were not detailed enough.

3.4.2 Patient knowledge

- **Manning, O'Meara, Williams, Rahman, Tammel, Myhre, Carter (2007) 3D: A Tool for Medication Discharge Education [Table 11, p. 100]**

  Manning *et al.* undertook a randomised controlled trial to assess the impact of a newly designed medication discharge education tool, Durable Display of Discharge (3D), on: patient satisfaction with discharge medication regimes; understanding of medications; and a reduction of medication-related errors. Results of the study demonstrated there was no statistically significant difference in patient satisfaction or self-reported medication errors between the intervention (3D) and non-intervention (MDW) groups, however the 3D group was associated with greater understandings of medications.

- **Coleman, Parry, Chalmers, Min (2006) The Care Transitions Intervention: Results of a Randomized Controlled Trial [Table 11, p. 100]**

  Coleman *et al.* undertook a randomised controlled trial of a care transitions intervention designed to encourage patients and caregivers to participate more actively in care transitions. Results from the study demonstrated that patients in the intervention group had lower readmission rates than their 'usual care' counterparts. Results also found that patients were better equipped to self-manage their condition and medications beyond the transition.

- **Makaryus, Friedman (2005) Patients' Understanding of Their Treatment Plans and Diagnosis at Discharge [Table 13, p. 101]**

  Makaryus and Friedman surveyed patients to ascertain whether they knew about their discharge diagnosis, treatment plan and medications at discharge. Results showed that just over one-quarter of patients surveyed was able to list all of their discharge medications and 37% were able to recount the usage of their medications. Most patients (72%) were unable to list the names of all their medications.

- **Middleton, Appleberg, Girgis, Ward (2004) Effective Discharge Policy: Are We There Yet? [Table 13, p. 101]***

  Middleton *et al.* undertook a qualitative study to determine patients' knowledge, prior to admission, about hospitalisation and their perceptions of 'readiness' to leave hospital and GP interaction with hospitals. Results from the study demonstrated that the majority (84.2%) of patients were not informed of their length of stay and similarly 87.0% of patients described themselves as being 'ready to go home' upon discharge. Only 23.7% of GPs received both a discharge summary and a personalised letter from the patient's surgeon.

3.5 eHealth Services Research Group Commentary

This review highlights that a very large volume of literature has been, and continues to be published ostensibly on discharge and/or discharge related topics. It is also evident that despite this continued level of interest the numbers of high quality evidence based interventions that display a high level of potential for transferability remain relatively low. Partly this is the result of definitional ambiguity and a lack of consensus in the precise meaning of discharge. More importantly however, it is to do with differences identified by this review both within and between different countries, medical jurisdictions and amongst different health professions in relation to how discharge and discharge related terms are used to describe the complexity of patient and information flows through the health system.

Aligned to these issues, this review has also highlighted the large numbers of papers that while matching the search terms actually only have a casual or passing relevance to the questions being posed by the review. In this regard, this review deliberately prioritised literature focused on processes, tools and techniques as well as experiences and insights related to the transfer of patients, information about them and/or their care from individual or teams of health professionals in one setting to those in another health organisation or setting (i.e. Inter-organisational processes rather than just intra-organisational processes).

In this regard, the review has identified a dominant 'hospital-centric' paradigm permeating the orientation, focus and volume of evidence available on discharge and discharge related tools and techniques. This is partly explained by the fact that many hospitals remain a focus and driver of scientific research. It does however need to be carefully considered when assessing

improvement initiatives because the available literature has perhaps unintentionally ended up even defining gaps in evidence and directly influenced the boundaries of contemporary debates on the topic of discharge. Without care, readers could be mistaken for thinking that discharge is an activity that takes place within, and is the sole responsibility of hospitals and their staff. As this review has identified there is now a smaller but significant body of work examining the importance of communication and the exchange of information between hospitals and primary care.

The basic requirements of a safe, effective discharge summary have not change significantly over the last 30 - 40 years: the summary should be accurate, complete, legible, and available within a short time of the patient leaving hospital. However, there is still no reliable evidence of hospitals having a consistent ability to meet those requirements.

More specifically this review has also highlighted a number of other key perspectives in the literature including enthusiastic suggestions that ICTs will help alleviate the problems of communication at the time of discharge. However, the evidence of benefit is not entirely convincing, and the benefits themselves not automatic. If the use of typed letters, handwritten summaries and telephone calls has often failed to improve communication about patient care, it is overly simplistic to imagine that without considerable effort and care newer electronic tools will resolve all of the issues with communication – and indeed strong evidence is still lacking.

The review also includes a large number of studies and commentaries on the risks of medication management around patient discharge. Safe patient transition requires accurate medication lists, a shared understanding of therapeutic intent, and patients who understand the basic details of their continuing drug treatment. It is possible that the medication safety issues which become apparent at the time of discharge are risks peculiar to the discharge process. However, it is equally likely that these represent a pervasive risk, present for the patient at stages of their treatment, in all settings, and that the risk observed at the time of discharge is just a snapshot of a perpetual safety issue.

Similarly, the evidence suggests that elderly patients and patients with poor literacy may be particularly vulnerable at the time of discharge, but this vulnerability is also likely to be present in all other healthcare settings.

Importantly it is necessary to re-iterate that the specific requirements of this type of review impose an artificial separation between the processes of discharge, referral and admission that is not replicated in practice. Discharge of a patient by one care provider regularly results in admission by another, and these complementary activities are frequently accompanied by some form of referral. Ensuring safety and quality of patient care across multiple settings means that these processes should, wherever possible, not be treated in isolation.

Discharge should not be viewed as a ‘single point’ or ‘singular event’ in a patient’s care but rather as an extended transition process towards the end of an episode of care. The attention and focus on returning the patient to their community environment should properly begin at the time of admission into care. In an age where chronic disease has become the major drain on health care resources, it is critical that changes in treatment, therapy and medications are focused on improving patient’s ability to continue the management of their care in their home setting, and that this information is available rapidly and in a clear and consistent format to other health services in order that support arrangements that may be required can be implemented in the safest, most effective and efficient manner.

On the basis of this review it is evident that the key elements in a safe and high quality transition at the time of discharge include:

- A clear plan for ongoing care;
- An accurate, complete (non-verbose) legible summary, including medications and next actions, available soon after discharge (optimally within 48 hours);

- An active process of the transfer of care to the patient's usual healthcare provider; and
- Ensuring that the patient and their carer understand any on-going treatment/care that has been planned.

These processes can be optimised if organisations involved in discharge have transparent and explicit guidelines supported by education and training for health professionals (including communication with patients/carers) on the processes, tools and techniques for discharge. These processes can be further enhanced by ensuring health professionals are aware of the lines of responsibility for ensuring a high quality discharge and about how the transition towards the end of an episode of care is defined within their health care contexts.

Above all this review highlights that discharge remains a high risk scenario for patient safety with dangers of discontinuity of care, adverse events and unplanned re-admission linked to poor communication, poor medication management and to the age, acuity and health literacy of patients.

Much of the published evidence focuses on the discharge summary and/or discharge planning. A large number of these studies variously focus on the format of discharge summaries, factors impacting their use, their clinical impact and the utility of linking discharge to other data (medications, medical records) or services (e.g. community pharmacy, community rehabilitation) to improve information quality, patient outcomes and reduce re-admissions.

It is noticeable that the majority of the evidence is hospital centred and that it is only more recently that a body of evidence has emerged around discharge in primary and community care settings. Noticeably despite enthusiasm around electronic tools to improve discharge strong evidence is still lacking and only a few studies recognise the critical importance of education and training in the use of any guidelines or protocols including electronic tools to improve discharge. Other evidence gaps include limited attention to the importance of communication practices outside of any specific discharge summary document during the transition towards the end of an episode of care and also the impact of patient's health literacy at the time of discharge and how this effect's outcomes/readmission.

Overall this review highlights a growing awareness of the critical importance of discharge for improving safety and quality and in particular suggests that emerging trends in the near future are likely to be:

- Intervention studies focused on using more structured approaches to improve discharge processes; discharge summaries and discharge planning;
- Intervention studies focused on more holistic evaluation of improvement initiatives that extend beyond the conventional organisational boundaries to include discharge recipients; and
- More research into how best to optimise the role of patients and carers during discharge to improve safety and quality of care; patient outcomes and reduce re-admission resulting from discontinuity of care, medication errors, limited health literacy.

The next section (3.6 below) presents five tables for each major section of this literature review (a total of 15 tables). These tables categorise all evidence based materials discussed above as well as other materials (categories 4 and 5 i.e. reviews, opinions and reports) identified as of relevance. As discussed in the introduction the aim of the categorisation (1-5) is to enable readers to quickly and easily differentiate between different types of intervention based studies; and differentiate intervention based studies from pre-interventional studies, reviews, opinions and reports.

3.6. Summary Tables on Discharge

3.6.1 Discharge - High Risk Scenarios and Patient Safety Tables

Table 1: High Risk Scenarios and Patient Safety - Category 1

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Balaban, Weissman, Samuel, Woolhandler, (2008)	Discharge Improvement	Randomised Controlled Trial (RCT). Intervention patients completed a 'Patient Discharge Form' and received a follow-up telephone call from a nurse upon home arrival	This paper describes the difficulties experienced by patients (and carers) after being discharged from hospital to home. These difficulties are attributed to three factors: poor discharge planning by hospital staff who are increasingly time-pressured; poor communication between hospitals and primary care physicians (PCPs); and inadequate discharge summaries. There are also long delays between discharge and follow-up appointments with PCPs. The isolation of PCPs from the discharge process and the information flow directly affects the health outcomes of patients. A Patient Discharge Form was administered to an intervention group of Culturally and Linguistically Diverse (CALD) patients. The intention was to empower patients in overseeing their post-discharge care. Patients were asked to read and review discharge information with a supervising RN before discharge. The form was designed to be user-friendly, and was electronically transferrable between health care providers. Information fields on the discharge form were designed to address common communication	Theme: Patient characteristics Country: Canada This intervention demonstrates the benefits of standardizing the discharge process between hospital and primary care sites. It also demonstrates the importance of registered nurses (RNs) in the discharge process to oversee the flow of information between acute and primary care sites. The authors were unable to provide convincing evidence that their model for medication management reduced medication error.

Table 1: High Risk Scenarios and Patient Safety - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			problems in the transition from acute to primary care. At discharge, the form was electronically sent to an RN at the patient's primary care site. Results from this study demonstrated an improvement in discharge follow-up rates for CALD patients in the intervention group.	
Bergkvist, Midlöv, Höglund, Larsson, Bondersson, Eriksson, (2008).	Discharge summary improvement and impact	Randomised Controlled Trial (RCT), longitudinal study	This paper describes a randomised controlled trial to improve the quality of discharge summary in the transition from hospital to primary and community care using a medication management model (tools, activities for medication reconciliation and review). This study was conducted longitudinally with an intervention and control group. As a part of the activities conducted in the in intervention group, medication reconciliation was performed on admission and an in-depth review of medications were reviewed. Physicians completed the discharge summary, which was evaluated and reviewed by a pharmacist to assess any significant changes between admission and discharge. Any issues raised by the pharmacist were then discussed with the physician to make any changes upon discharge. Patients in the control group received normal care. Results from the study demonstrated that patients in the intervention group on average had 45% fewer medication errors. The proportion of patients without medication errors was slightly higher in the intervention group, but the increase was not	Theme: Medication management Country: Sweden This model for medication management reduced the number of medication errors in the intervention group.

Table 1: High Risk Scenarios and Patient Safety - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			significant.	
Dudas, Bookwalter, Kerr, Pantilat, (2001)	Discharge Planning Medications	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial of discharge planning with support from a pharmacist to improve patient satisfaction and outcomes. Patients from a general medical service in an academic hospital were randomised into the intervention/pharmacist assisted group or 'usual care'. Patients in the intervention group received a follow-up phone call two days after discharge to discuss medication management. Both intervention and usual care patients were surveyed to assess satisfaction with hospitalisation. Results from the study demonstrated that the phone call gave pharmacists the opportunity to resolve medication-related problems in 15 patients. 12 patients had new medical problems, which were referred to an inpatient team. The intervention group had a lower rate of readmission within 30 days (10%) than the usual care group (24%). There was also increased patient satisfaction in the intervention group.	Themes: Readmission, Post-hospital support Country: United States Patients who have telephone contact with a pharmacist after hospital discharge are less likely to be readmitted, and are more satisfied with their care.
Koehler, Richter, Youngblood, Cohen, Prengler, Cheng, Masica, (2009)	Discharge Planning	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to assess the impact of a 'supplemental care bundle' on hospital readmission rates for elderly patients. The intervention included: a study care coordinator to educate patients during admission and after discharge; a study pharmacist to undertake medication reconciliation and review during and after admission; and a set of structured documents, including a personal health	Themes: Readmission, Country: United States A more comprehensive approach to discharge planning resulted in a decrease in readmission rates within 30 days, but had little impact on readmissions between 30 and 60 days after discharge.

Table 1: High Risk Scenarios and Patient Safety - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			record. The supplemental discharge form included in this bundle was faxed to the patient's primary care physician. Patients were randomised into the control or intervention arm of the project. The intervention began immediately after the enrolment and consent of the patient. All intervention patients received intervention treatment as well as usual care treatment. Results from the study demonstrated that the supplemental care bundle decreased unplanned readmissions within 30 days of discharge; however, readmission rates between 30-60 days amongst the intervention group were significantly higher in the intervention group and comparable with the control group.	
Kunz, Wegscheider, Guyatt, Zielinski, Rakowsky, Donner-Banzhoff, Muller-Lissner (2007)	Discharge Summaries Medications	Randomised Controlled Trial (RCT)	This paper describes a cluster-randomised controlled trial to assess the impact of short, one-sentence evidence summaries appended to consultants' letters to primary care physicians (PCPs) and the adherence of PCPs to recommendations made by the consultant regarding medication for patients with chronic medical problems. General practices within the Park-Klinik Weissensee, Berlin area were randomised into the study where patients had been admitted the preceding year to receive or not receive evidence summaries appended to consultant's letters. In the intervention group, evidence summaries were appended to the letter and in the control group a code number to the relevant summary was noted on the	Themes: Medication management, Communication about medications, Country: Germany Primary care practitioners are more likely to accept advice from specialists about patient medications if it is accompanied by a brief summary of the evidence supporting the advice.

Table 1: High Risk Scenarios and Patient Safety - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			letter. Interviews with participating PCPs were undertaken to assess doctors' adherence to the relevant consultant recommendations and to assess PCPs attitudes towards the evidence summary. Results from the study demonstrated that appending an evidence summary to discharge letters resulted in an increase in adherence to discharge medication (29.6% to 18.5% - control group). For non-adherence to consultants' recommendations, the most significant reason was budget-related reasons.	
Nazareth, Burton, Shulman, Smith, Haines, Timberall (2001)	Discharge planning	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to investigate the effect of a pharmacy discharge plan for elderly hospitalised patients. Discharged patients aged 75 years and over on four or more medications were randomised to either a pharmacy intervention or normal care group. Patients in the intervention group had discharge plans developed by a hospital pharmacist detailing the medication and support required by the patient. A copy was forwarded to patients' carers and all relevant healthcare professionals. A community pharmacist then undertook a domiciliary assessment. The primary outcome measure was readmission to hospital within 6 months; secondary outcomes included death, outpatient and GP attendance, days in hospital, and patient wellbeing and satisfaction. Results from the intervention demonstrated no significant difference between coordinated hospital and	Themes: Medication management, Discharge planning, Post-hospital support Country: Britain Coordinated discharge plans with pharmacist input for patients over 75 years of age had no effect on patient outcomes.

Table 1: High Risk Scenarios and Patient Safety - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			community pharmacy care discharge plans and standard care.	

Table 2: High Risk Scenarios and Patient Safety - Category 2			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Walker, Bernstein, Tucker Jones, Piersma, Kim, Regal, Kuhn, Flanders, (2009)	Intervention Medications	This paper describes a pharmacist-led healthcare service intervention after discharge. The study used a prospective, alternating month, quasi-experimental design to compare outcomes of patients receiving the intervention with those of a of control group. Patients in the intervention group received medication therapy assessments, medication reconciliation, screen for adherence, counselling and education, and a post-discharge telephone follow-up. The effectiveness of the intervention was measured by 14-day and 30-day readmission rates and emergency department visits within 72 hours. The study showed medication discrepancies in 33.5% of the intervention patients, and in 59.6% of the control patients. Results also demonstrated that neither readmission rates nor ED visits differed statistically between the two groups.	Theme: Medication management Country: United States This pharmacist-led discharge intervention reduced medication discrepancies, but had no impact on readmissions or emergency department visits.

Table 3: High Risk Scenarios and Patient Safety - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Boockvar, Fishman, Kyriacou, Monias, Gavi, Cortes, (2004)	Quantitative Medications	This paper describes a study of medication changes during transfer between hospitals and nursing homes and related adverse drug events. Medical records from nursing homes and hospitals were reviewed; changes were identified and independently reviewed; adverse events were noted. Results from this study demonstrate that medication regimes changed significantly	Theme: Communication about medication, Country: United States The small sample size in this study limits

Table 3: High Risk Scenarios and Patient Safety - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		during transfers. These changes were attributed to poor communication of medication regimes between facilities. Results also demonstrated that adverse drug events were more likely to be precipitated during hospital admission, but identified after return to the nursing home.	the authors' ability to comment on adverse event episodes and patient characteristics.
Coleman, Smith, Raha, Min, (2005)	Intervention Medications	This paper describes an evaluation of medication discrepancies post discharge in people aged 65 years and over. The evaluation was undertaken by a geriatric nurse between 24 and 72 hours after discharge; medications prior to hospital and medications taken post hospitalisation were documented. Results from the study demonstrated that just over 14% of patients experienced one or more discrepancies. These discrepancies were attributed to either patients or to hospital systems. 14% of patients with discrepancies were re-hospitalised.	Theme: Medication management Country: United States This paper shows the benefits of a nurse-led intervention to undertake medical reconciliation.
Glintborg Ejdrup Andersen, Dalhoff, (2006)	Qualitative Quantitative Medications	This paper describes a lack of communication and poor transfer of information about medication from the acute care setting to primary care practitioners and to patients. The study examined 83 surgical and 117 medical patients by reviewing their medication records from hospital, and followed up with a patient interview one week after discharge. Results from the study demonstrated that one in five medications used by patients after hospitalisation were unknown to the hospital. Furthermore, medications prescribed by patients' general practitioners were not recorded in hospital records. Discharge letters were very poor, and often omitted medications, particularly for surgical patients: 55 of 83 surgical patients' discharge letters contained no medication list in the discharge letter.	Theme: Communication about medication Country: Denmark This paper highlights the high level of medication-related errors, particularly amongst surgical patients' discharge letters.
Grimes, Delaney, Duggan, Kelly, Graham, (2007)	Quantitative Medications	This paper describes a three-month survey of medication documentation at discharge from an Irish hospital. Results from the study demonstrated a risk for patients when transitioning between care environments. The rate of medication errors ranged between 11% and 53% of all patients. Results from the survey also demonstrated that there was no greater risk of discrepancy for patients discharged during weekend periods with limited on-call staff compared with those discharged on weekdays. The study also showed that handwritten discharge summaries to be an unreliable source of hospital information, which correlates with previous research.	Theme: Communication about medication Country: Ireland

Table 3: High Risk Scenarios and Patient Safety - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Karapinar, van Bemt, Zoer, Nijpels, Borgsteede, (2010)	Qualitative Quantitative Medications	This paper describes a study to investigate the needs of Dutch general practitioners for discharge medication details. Results from the study demonstrate that the majority of general practitioners sampled in this study (75%) experienced delays with the delivery of discharge information relating to medications. GPs also stated that they were often confronted with questions about medication immediately after discharge and would prefer discharge medication information to be sent and received on the day of discharge. There were also concerns with missing information on discharge, such as the rationale for changing medication during admission.	Theme: Communication about medication Country: Netherlands This paper highlights concern amongst GPs about missing information on discharge letters.
Kripalani, Henderson, Jacobson, Vaccaring, (2008)	Qualitative Medications	This paper describes a qualitative study of patients' adherence to prescription and medication regimes after discharge. Patients were contacted by telephone two weeks after discharge. Results from the telephone interviews demonstrated that only 40% of participants reported filling their prescriptions on the day of discharge; an additional 20% reported filling their prescription one or two days later. 22% of participants still had not filled their prescriptions at the time of the telephone interview. Reasons attributed to the delay included: costs, transport and long waiting times at pharmacies. 21% of patients did not understand why they were prescribed certain medications; 11% did not know how to take them; and a further 16% did not know how to manage their discharge prescriptions with their normal medications.	Theme: Medication management Country: United States This paper highlights patients' poor adherence to prescription and medication regimes upon discharge.
Kripalani, LeFevre, Phillips, Williams, Bavaiah, Baker, (2007)	Qualitative Review Continuity of Care	This paper describes an exhaustive review of literature detailing deficits in communication and information transfer between hospitals and primary care physicians. Results from the study demonstrate that direct communication between hospitals and primary care providers (PCPs) is relatively low and quite infrequent. One-fifth of all PCPs reported that were always notified about the discharge of their patient from hospital. The study also demonstrated that discharge letters were more likely to be hand-delivered by patients or posted. A quarter of all discharge summaries were never received. The paper also reviewed interventions to improve information transfers. The most common interventions were the use of computerised discharge systems to measure quality, timeliness etc., but no standardised measures were used. Results from these intervention-based studies showed that electronic handling of discharge information was more efficient and	Theme: Medication management Country: United States This exhaustive review provides a very comprehensive overview of patient information and transfer between primary and secondary care. The paper also includes a number of suggestions to improve communication and information across the two sites, such as: structuring discharge summaries; integrate information technologies with hospital systems to improve efficiency and quality

Table 3: High Risk Scenarios and Patient Safety - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		timely.	of information of discharge summaries; disseminate discharge information to patients and caregivers.
Kripalani, Price, Vigil, Epstein, (2008)	Quantitative Medications	This paper describes a study of the frequency and predictors of prescription-related issues after discharge from hospital, drawing upon patients' clinical and administrative data. Results from the study demonstrated that 7.2% of all patients sampled experienced a prescription-related issue 48-72 hours after hospital discharge. Of these, the majority were related to patients not picking up their medications.	Theme: Medication management Country: United States This paper highlights a small percentage of patients experienced prescription issues within 2-3 days afterd discharge.
McMillian, Allan, Black, (2006)	Quantitative Medication	This paper describes a study of medication accuracy in hospital discharge summaries at an Auckland-based hospital by rating the severity of medicine-related errors for 100 general medical and 100 surgical services. Medication information was recorded on admission and from inpatient medication charts and the discharge summary. Results from this study indicate that there was a high error rate, particularly amongst the general medical patients' discharge summaries. The majority of errors were considered to be minor, but some had the potential to seriously harm patients.	Theme: Communication about medication Country: New Zealand This study does not indicate how often adverse events are a result of errors on discharge summaries.
Midlöv, Bergkvist, Bondesson, Eriksson, Höglund, (2005)	Quantitative Qualitative Medications	This paper evaluates the frequency and nature of medication-related errors in patients who are transferred between primary and secondary care. Results from the study demonstrated that 85% of patients transferring from primary to secondary care had at least one medication error, compared to 54% of patients transferring from secondary to primary care. The most common type of errors were inadvertent withdrawal of a drug on admission, and the addition of a drug to the patient's medication regime on discharge.	Theme: Medication management Country: Sweden Medication related errors occur at admission and at discharge.
Moore, McGinn, Halm, (2007)	Quantitative Discharge	This paper describes a retrospective cohort study to evaluate the frequency of outpatient workups as recommended by physicians for patients discharged from medicine or geriatric services. Results from this study demonstrated that 27% of patients discharged had outpatient workups, of which half were further diagnostic procedures and laboratory tests. A third of all recommended post-discharge workups were not completed. Results also demonstrated a correlation between the availability of a discharge summary	Theme: Problems with discharge communication Country: United States This paper highlights findings which suggest that a third of all post-discharge tsts were not completed and that the

Table 3: High Risk Scenarios and Patient Safety - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		documenting the workup and an increased likelihood of undertaking the workup.	relationship between adequate documentation and successful completion of follow-up tests were significant.
Moore, Wisnivesky, Williams, McGinn, (2003)	Quantitative Medication Discharge summaries	This paper describes the prevalence of medical errors related to the transfer of patients between acute care and community care settings, particularly when patients are re-hospitalised. Results demonstrated that a significant number of patients had medical errors as a result of failure to transfer the discharge summary between providers. Further research into the receipt of discharge summaries is needed to fully understand these errors.	Theme: Problems with discharge communication Country: United States Further research into how discharge summaires are received by healthcare providers is needed.
Orrico, (2008)	Quantitative Qualitative eDischarge Medications	This paper describes a study to quantify and categorise the number and type of medication-related discrepancies between electronic medical records (EMR) and actual medication use. A review of patient EMRs was followed by an in-depth interview with patients. Results from the study found 223 discrepancies between patient medication use and the EMR. The most common error (70.4%) was the documentation of medication on an EMR that was no longer being taken by the patient. Most errors (78%) were attributed to system errors; the remainder were categorised as patient errors. The most common patient errors was the omission of multivitamins.	Theme: Communication about medication Country: United States This paper highlights the high proportion of errors in EMRs to be the result of system issues. The paper also identifies a list of common medication type errors.
Paulino, Bouvy, Gastelurrutia, Guerrero, Buurma, (2004)	Quantitative Qualitative Medications	This paper describes a study to examine the nature and frequency of drug-related problems in patients discharged from hospital. Problems were identified by community pharmacists across European countries; the study then examined what community pharmacists could do in order to solve or prevent these problems. Community pharmacists recorded patients' medication problems on a questionnaire, and pharmacy follow-ups were conducted in home or via telephone. Two more questionnaires were administered: one to detail the problems detected by the pharmacist and the interventions made, and another to record the characteristics of the pharmacies, i.e. number of staff. Results from the study demonstrated that there was a total of 63.7% of drug-related problems detected in the sample. The most common problem was identified as a lack of knowledge about the	Theme: Medication management Country: Netherlands, Spain, Portugal This paper highlights the further need for educating and providing patients with information about medications and medication regimes.

Table 3: High Risk Scenarios and Patient Safety - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		medication and its function.	
Pham, Grossman, Cohen, Thomas, (2008)	Quantitative Care transitions and coordination	This paper describes a study of the impact of hospitalists on are delivery systems by undertaking qualitative interviews with hospital executives, medical groups, policymakers and hospital and community-based physicians. Results from the study demonstrated that the growing emergence of the 'hospitalist' model has led to a divide between inpatient and outpatient care and communication. The study also recognised the growing burden on the coordination of care resulting from increased barriers to the transfer of patients between providers. Respondents noted that discharge summaries do not explicitly detail medical history or important clinical information.	Theme: Problems with discharge communication Country: United States This paper describes the hospitalist model in great detail and its impacts upon coordination and continuity of care.
Tija, Bonner, Brieacher, McGee, Terrill, Miller, (2009)	Quantitative Acute care-Residential Ager Care Facilities Medication	This paper describes a cross-sectional study to describe the prevalence and type of medications and the source of medication errors upon transfer between hospitals to skilled nursing facilities (SNF). Results from the study demonstrated disagreements between discharge summary and patient referral forms in half of all admissions to the SNF.	Theme: Communication about medication Country: United States This paper demonstrates the issues of medication errors on the transfer from hospital to skilled nursing homes.
van Walraven, Taljaard, Bell, Etchells, Zarnke, Stiell, Forster, (2008)	Quantitative Acute care-community care Continuity of care	This paper describes the lack of information exchange between hospitals and GPs who treat the same patient. Results showed poor exchange of information between health care providers and that lack of exchange of information severely affects continuity of care for the patient. The paper also identified that poor exchange of information was likely due to the fact that physicians felt that the need for more information about care from other providers was unnecessary.	Theme: Problems with discharge communication Country: Canada This paper highlights the impact of GP's input in developing discharge summaries.
Vira, Colquhoun, Etchells, (2006)	Quantitative Medications	This paper details the effect of medication reconciliation to identify and rectify medication errors at the time of hospital admission and discharge. A random sample of sixty patients from a Canadian community hospital was enrolled in the study. Medication orders and discharge instructions were compared at pre-admission, admission and discharge. Results from the study showed that 60% of patients had variances at admission or discharge; 11% had significant clinical outcomes. At discharge, 41% of patients had one or more	Theme: Medication management Country: Canada This paper highlights the high number of variances in medication information on discharge summaries.

Table 3: High Risk Scenarios and Patient Safety - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		unintended medication variances, including 10 patients with three or more variances.	
Wilcock, Lawrence, (2008)	Audit Medications	This paper describes a study to compare medications prescribed at discharge with those prescribed during admission, and an assessment of information provided to the general practitioner that describes these changes. A secondary objective of this study was to measure the extent to which the prescribed medication at admission and discharge adhered to the Joint Formulary, a tool used to ensure safe and effective prescribing. The study demonstrated that 14% of medications were non-formulary. 12% of information provided on discharge was scored as being 'very poor'.	Theme: Communication about medication Country: Canada This study's focus on patients from cardiac and respiratory wards limits its applicability to other wards, and other hospitals.
Witherington, Pirzada, Avery, (2008)	Quantitative Discharge Communication	This paper describes a retrospective study to identify communication gaps at hospital discharge for patients aged 75 years and over who are readmitted within 28 days. Results demonstrated that 28% of patients returned within three days of discharge and 44% within seven days. 62% of patients had no discharge letter, or returned before the letter was processed. Results also demonstrated that medication information and documentation was incomplete in two-thirds of all discharge documentation. 41% of readmissions were medication-related, and 21% of these were preventable.	Theme: Problems with discharge communication Country: Britain This paper provides a brief, but comprehensive overview of issues for older people at discharge, particularly medication-related issues. It also details implications and recommendations for practice, such as the idea of a pre-discharge review for patients.
Wong, Bajcar, Wong, Alibahai, Huh, Cesta, Pond, Fernandes, (2008)	Qualitative Quantitative Medications	This paper describes a study to identify, characterise and assess the clinical impact of unintentional medication discrepancies at discharge. Results from the study demonstrated that 70% of patients sampled from a general medical ward at a tertiary teaching hospital had one actual or potential unintentional medication discrepancy at discharge. The most common type of discrepancy was an incomplete medication prescription, which needed further details. Other types of discrepancies, included: delays in obtaining medications and omission of medications.	Theme: Communication about medication Country: Canada This paper highlights the high prevalence of medication errors at discharge.

Table 4: High Risk Scenarios and Patient Safety - Category 4		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Ash, Berg, Coiera, (2004)	Review EHealth	This review discusses the impact of errors in patient care information systems on patient health outcomes, and in particular recognises the challenges information systems pose for healthcare providers and practitioners. These include: entering and receiving information; transferring information; and inflexibility.
Cua, Kripalani, (2008)	Commentary Medications	This commentary discuses patients' management and knowledge of medication usage after discharge from hospital. Patients experience problems with medications after discharge because of poor documentation in medical records during admission and discharge; ineffectual communication between physicians and patients; and poor legibility of discharge summaries. The commentary recommends that, at discharge, better documentation and communication about patient's medications is needed between physicians and patients and physicians and other healthcare providers
Cumbler, Carter, Kutner, (2008)	Case Report Discharge	This case report discusses the limitations and challenges of discharge planning for vulnerable, elderly patients. The report demonstrates the importance of medication reconciliation for patients upon discharge to decrease medication errors and to improve overall patient safety. The report also discusses previous interventions highlighting nurse-led discharge planning to improve care transitions.
Kripalani, Jackson, Schnipper, Coleman, (2007)	Review Continuity of Care	This review discusses approaches to improving transitions of care. These include increased communication between inpatient and outpatient physicians; medication reconciliation; education of patients about their medication regime and the use of social support systems.
Payne, Kerr, Hawker, Hardey, Powell, (2002)	Systematic review of qualitative and quantitative literature	This review highlights communication gaps between health and social care staff in the acute and community care sectors. Improved processes and systems to transfer information about patients between these sectors are needed.
Rifas, (2004)	Commentary Discharge	This commentary, following on from Forster *et al.*'s (2003) study argues that adverse events following discharge cannot be solely attributed to physician error. Deficits within the healthcare system also contribute to adverse events. This commentary makes note of issues with medication delays and unavailability of medications to treat patients within institutions, which may relate to adverse events.

Table 5: High Risk Scenarios and Patient Safety - Category 5		
Author(s)	**Type: Report**	**Comments**
Baker, Norton, (2001)	Quantitative Qualitative Patient safety	This report reviews patient safety in Canadian hospitals. Using questionnaires and telephone interviews with key stakeholders – healthcare providers, professional organisations and policy makers - this report found that there is little information about programs or procedures to improve patient safety in Canadian healthcare organisations. Better reporting systems are needed to improve the flow of information and increase communication and increased awareness amongst professionals and policymakers about patient safety is required.

3.6.2 Discharge - Current Practices, Interventions, Critical Success Factors and Effectiveness Tables

Table 6: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Bergkvist, Midlöv, Höglund, Larsson, Bondersson, Eriksson, (2008).	Discharge summary improvement and impact	Randomised Controlled Trial (RCT), longitudinal study	This paper describes a randomised controlled trial to improve the quality of discharge summary in the transition from hospital to primary and community care using a medication management model (tools, activities for medication reconciliation and review). This study was conducted longitudinally with an intervention and control group. As a part of the activities conducted in the in intervention group, medication reconciliation was performed on admission and an in-depth review of medications were reviewed. Physicians completed the discharge summary, which was evaluated and reviewed by a pharmacist to assess any significant changes between admission and discharge. Any issues raised by the pharmacist were then discussed with the physician to make any changes upon discharge. Patients in the control group received normal care. Results from the study demonstrated that patients in the intervention group had a fewer medication errors. The proportion of patients without medication errors was slightly higher in the intervention group (73.5%) than in the control group (63.5%), but the increase was not significant (*P*=0.319).	Theme: Medication management Country: Sweden This model for medication management reduced the number of medication errors in the intervention group.
Chen, Brennan, Magrabi, (2009)	eDischarge	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial of an electronic discharge communiqué using different methods of communication: e-mail, fax, post and patient-hand delivery. Patients from a 350-bed ward located in a NSW hospital were randomly assigned to one of the four discharge summary delivery methods on admission. Seven days after discharge, a principal investigator contacted all participating general practices of patients in the study to ascertain	Theme: Effectiveness of discharge summary options Country: Australia Fax and email provide more reliable delivery of discharge summaries than either post of patient hand delivery.

Table 6: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			whether the discharge summary was delivered. Results from the study demonstrated that fax and e-mail methods of delivery were more effective. Between 69% and 74% of all discharge summaries that were faxed or e-mailed were received within one week of discharge. Results also demonstrated that, within the sample, GPs' use of computers for clinical purposes was relatively low.	
Cunliffe, Gladma, Husbands, Miller, Dewey, Hardwood, (2004)	Discharge	Randomised Controlled Trial	This paper describes a randomised controlled trial of early discharge and rehabilitation support for older persons. A sample of 370 patients from general and surgical wards was randomised across the intervention and 'usual care' groupings. Patients randomised to the early discharge and rehabilitation service (EDRS) were discharged as soon as possible and given access to the EDRS. Patient health outcomes were measured across the two groupings. A qualitative interview with patients and EDRS staff responsible for patients were undertaken six to eight weeks after discharge. Results from the study demonstrated that patients randomised the EDRS group had better health outcomes and fewer days in hospital than their usual care counterparts. Results from the qualitative component of the study revealed that person-centred care after early discharge improved health outcomes and patient satisfaction.	Theme: Post-hospital support Country: Britain This early discharge and rehabilitation program reduced hospital stays and gave better patient outcomes.
Dudas, Bookwalter, Kerr, Pantilat, (2001)	Discharge Planning Medications	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial of discharge planning with support from a pharmacist to improve patient satisfaction and outcomes. Patients from a general medical service in an academic hospital were randomised into the intervention/pharmacist assisted group or 'usual care'. Patients in the intervention group received a follow-up phone call two days after discharge to discuss medication management. Both intervention and usual care patients were surveyed to assess satisfaction with	Themes: Readmission, post-hospital support Country: United States Patients who have telephone contact with a pharmacist after hospital discharge are less likely to be readmitted, and are more

Table 6: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			hospitalisation. Results from the study demonstrated that the phone call gave pharmacists the opportunity to resolve medication-related problems in 15 patients. 12 patients had new medical problems, which were referred to an inpatient team. The intervention group had a lower rate of readmission within 30 days (10%) than the usual care group (24%). Patient satisfaction was higher in the intervention group.	satisfied with their care.
Graumlich, Novotny, Nace, Aldag (2009)	eDischarge	Randomised Controlled Trial	This paper describes a randomised controlled trial of hospital computer physician order entry (CPOE) software to improve discharge communication and clinical outcomes. A sample of 70 patients from a North American hospital was randomly assigned to either a control or intervention group. Patients in the intervention group were discharged using the CPOE software, which aimed at addressing errors in discharge summaries identified in previous literature. The CPOE software recorded tests needed after discharge and performed medication reconciliation. Hospital discharge summaries were generated from the software and faxed to community physicians. Patients' and general practitioners' perceptions of the discharge process using the CPOE and handwritten discharge summary methods were ascertained through questionnaires. Results from the study demonstrated that there was a small increase in the positive perception of the discharge process using the CPOE software amongst patients and outpatient physicians. Results also demonstrated that primary care physicians prefer electronically generated discharge summaries in standardised formats.	Theme: eDischarge Country: United States Use of CPOE-generated discharge summaries led to small improvements in clinician perceptions of the discharge process
Jack, Chetty, Anthony, Greenwald, Sanchez, Johnson,	Discharge	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to test the effects of an intervention program designed to minimise hospital utilisation after discharge. Patients from a general medicine service were randomised into a usual care or	Theme: Post-hospital support Country: United States Patients receiving support from a

Table 6: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
Forsyte, O'Donnell, Pasche-Orlow, Manasseh, Martin, Culpepper, (2009)			intervention group. A discharge nurse worked alongside patients in the intervention group to arrange follow-up appointments, reconcile medication lists, educate patients on post-discharge care and disseminate information to the primary care provider. Results from this study indicate that patients in the intervention group had a lower rate of hospital utilisation than those receiving usual care. However, patients in the intervention group reported a higher number of visits to their primary care physician.	discharge nurse used fewer hospital resources, but made more visits to their primary care practitioner.
Koehler, Richter, Youngblood, Cohen, Prengler, Cheng, Masica, (2009)	Discharge Planning	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to assess the impact of a 'supplemental care bundle' on hospital readmission rates for elderly patients. The intervention included: a study care coordinator to educate patients during admission and after discharge; a study pharmacist to undertake medication reconciliation and review during and after admission; and a set of structured documents, including a personal health record. The supplemental discharge form included in this bundle was faxed to the patient's primary care physician. Patients were randomised into the control or intervention arm of the project. The intervention began immediately after the enrolment and consent of the patient. All intervention patients received intervention treatment as well as usual care treatment. Results from the study demonstrated that the supplemental care bundle decreased unplanned readmissions within 30 days of discharge; however, readmission rates between 30-60 days amongst the intervention group were significantly higher in the intervention group and comparable with the control group.	Theme: Post-hospital support Country: United States This paper demonstrates of a more comprehensive approach to discharge planning, such as medication reconciliation and counselling to decrease readmission rates.
Maslove, Leiter, Griesman, Arnott, Mourad, Chow, Bell, (2009)	eDischarge	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to assess satisfaction of primary care physicians (PCPs) with an electronic discharge summary (EDS) program, and with conventionally dictated discharge summaries. The outcome	Theme: Effectiveness of discharge summary options Country: Canada

Table 6: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			measure for the study was overall quality of the discharge summary; PCPs assessed summaries using a 100-point visual analogue scale. Satisfaction of house staff and patients was also measured. Patients were randomised by assessment teams; both the EDS arm and the dictated summary arm of the study had two admitting teams. Results from the study demonstrated that there was no significant difference in PCP satisfaction with quality, completeness, organisation or timeliness between the EDS and dictated discharge summary groups. There was no statistically significant difference between patients in the two groups who needed follow-up tests or appointments, or in patient satisfaction with the use of either summary.	This RCT study demonstrates there is no significant difference in the use of technology to produce discharge summaries in terms of quality, timeliness or completeness.
Nazareth, Burton, Shulman, Smith, Haines, Timberall (2001)	Discharge planning	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to investigate the effect of a pharmacy discharge plan for elderly hospitalised patients. Discharged patients aged 75 years and over on four or more medications were randomised to either a pharmacy intervention or normal care group. Patients in the intervention group had discharge plans developed by a hospital pharmacist detailing the medication and support required by the patient. A copy was forwarded to patents' carers and all relevant healthcare professionals. A community pharmacist then undertook a domiciliary assessment. Results from the intervention demonstrated no significant difference between coordinated hospital and community pharmacy care discharge plans and standard routine discharge plans.	Themes: Medication management, Post-hospital support, Country: Britain Pharmacist involvement in preparing the discharge summary, and supporting the patient after discharge, had no effect of outcome.
Preen, Bailey, Wright, Kendall, Phillips, Hung, Hendriks, Mather, Williams, (2005)	Discharge Planning Continuity of Care	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to determine the impact of multidisciplinary hospital-coordinated discharge care plans on length of stay, quality of life, and patient and general practitioner satisfaction with the discharge planning process. Patients from general medical	Theme: Discharge planning Country: Australia This paper reinforces the value of multidisciplinary teams in improving

Table 6: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			wards were randomised into either an intervention or usual care group. Intervention group patients were administered a comprehensive discharge plan in accordance with the Australian Enhanced Primary Care Package, which was completed by a discharge nurse in conjunction with patient and community healthcare providers prior to discharge, and forwarded to the community physician and other health care providers involved in the patient's care. Patients and general practitioners were surveyed seven days after discharge. Results from the study demonstrated that patients in the intervention group were significantly more satisfied with the discharge planning process than those in the control/usual care group. Results also demonstrated that the time for hospitals to contact general practitioners was lower in the intervention group. General practitioners reported that a third of all discharge summaries received contained errors, and that only 27% are received at all.	discharge planning processes and outcomes.
Rutherford, Burge, (2001)	Coordination of Care Discharge Summary	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to improve the continuity of care for patients by increasing general practitioner contact, and providing a comprehensive discharge summary. Groups of 50 patients and their GPs were randomised into four groups: (1) GPs invited to contact by personal visit or telephone to assist with discharge planning and continuity of care, (2) GPs not invited to assist, (3) patients and their GPs sent a special discharge summary and (4) patients and GPs not sent a special discharge summary. Contact rates and GP satisfaction with discharge summary were measured. Results of the study demonstrated that 52% of GPS will visit patients in hospital if invited to participate in discharge planning. The study also found that 30% of GPs reported telephoning the hospital to enquire about their patient. This number increased to 80% when an invitation and payment for services was offered. 92% of	Theme: Discharge Planning Country: Australia Involving general practitioners in the discharge planning process can improve continuity of care.

Table 6: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			patients had contact with their GP after discharge.	
van Walraven, Laupacis, Seth, Wells, (1999)	Discharge Summaries	Randomised Clinical Trial	This paper describes a randomised clinical trial to compare dictated discharge summaries with database-generated summaries in an Ottawa hospital. Patients admitted to the general internal medicine service were allotted to either the dictated or generated group. In the database group, information was completed by house staff and entered into a database for collation. For the dictation group, house staff dictated narrative letters. Community physicians receiving the summary evaluated quality, completeness, organisation and timeliness. Results from the study demonstrated that the two groups had very similar outcomes. Database patients' discharge summaries were more likely to be received within four weeks of discharge than those in the dictation group. More data elements were likely to be included in the database-generated group. The database system also produced summaries more efficiently.	Theme: Effectiveness of discharge summary options Country: Canada Database-generated discharge summaries were rate by GPs as being of similar quality to dictated letters, and were delivered sooner.

Table 7: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Bolton, (2001)	Intervention Quality assurance audit Discharge improvement initiative	This paper describes a quality assurance activity to improve discharge summaries at the Balmain General Practice Casualty (GPC) to improve discharge communications. As a part of the intervention, all physicians working in the GPC undertook discharge letter training, which was audited. The outcome measure for this intervention was the completion of the discharge letter to the patient's primary care physician. Results from this	Theme: Evaluation of discharge effectiveness Country: Australia Training clinicians in the key aspects of discharge letters led to improved performance.

Table 7: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		intervention demonstrated that compliance with discharge summaries improved from 0-100% to 80-100% after the intervention phase.	
Hellesø, Sorensen, Loresen, (2005)	Qualitative Quantitative Discharge Communication	This paper describes a prospective study of both hospital and home care nurses' management of information on discharge before and after the implementation of an electronic patient record (EPR) system. Results from the study demonstrated that after implementation of the EPR, both nursing groups' satisfaction with the discharge planning process marginally improved from 96% to 98% satisfied. Results also demonstrated that the implementation of the EPR facilitated the work of both nursing groups. Both groups reported using the nursing care plan less after the implementation of the EPR as it required fields of information about future care recommendations in the discharge note template.	Theme: Nursing discharge Country: Sweden Nurses were marginally more satisfied with discharge planning using an electronic patient record (EPR). Use of the EPR led to changes in work practice.
Johnstone, Bagnall, Kam, Chan, (2003)	Implementation Discharge Summaries	This paper describes the implementation of a specifically designed discharge summary for elderly patients discharged from an aged care unit in a Sydney hospital. The new discharge summary incorporated key sections for: diagnosis; admission summary; co-morbidities, diet; functional status; community services provided on discharge; discharge list; medications (admission, discharge); and rationale for medication changes. These changes were made as a result of a questionnaire distributed to general practitioners and community healthcare providers. Junior medical officers were given training in the new discharge summaries and were asked to present summaries weekly to aged care specialists for feedback. After three months, another questionnaire was distributed to GPs and healthcare providers. Results from the study demonstrated an increase in satisfaction with post-intervention discharge summaries of 57%.	Theme: Enhanced communication Country: Australia Medical officers, particularly junior medical officers need to trained and educated in the completion of discharge summaries. The paper includes a template for new discharge summaries.
Kossovsky, Chopard, Bolla, Sarasin, Louis-Simonet, Allaz, Perneger, Gaspoz, (2002)	Intervention Discharge Planning	This paper describes the implementation of changes to the admission and discharge process in a Swiss hospital to decrease the rate of inappropriate hospital admissions and inappropriate use of hospital bed days for patients awaiting discharge to a rehabilitation service. For admissions, a telephone line was established for primary care physicians to call to assess the urgency of their patients' needs and if they should be referred/admitted to the hospital. For discharge, the transfer process was simplified and streamlined;	Theme: Enhanced communication Country: Switzerland This paper demonstrates the benefits of a simplified system to enable healthcare providers to deliver information timely and efficiently.

Table 7: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		documentation was only transferred once to each responsible party. Results from the study demonstrate that the inappropriate use of hospitals/hospital beds amongst non-urgent admissions decreased, however inappropriate hospital days amongst the discharge of patients to rehabilitation did not decrease significantly.	
Midlöv, Deieborg, Holmdahl, Höglund, Eirksson, (2008)	Intervention Medications	This paper describes a randomised controlled trial to investigate whether the use of a Medication Report can reduce the number of adverse events related to medication errors post-discharge. Patients aged 65 years and older with one medication after discharge were recruited for the study; the intervention was not randomised. Patients in the intervention arm of the study had their medications and regime recorded on the Medication Report. Patients in the control group were drawn from a retrospective sample of patients discharged one year ago. Both intervention and non-intervention patients were administered medications by a community nurse or an aged care facility nurse. Results from the study demonstrated that the use of the Medication Report significant reduced the risk of adverse consequences related to medication.	Theme: Medication reports Country: Sweden This pre and post intervention study confirms that the use of a medication report can reduce adverse events.
Midlöv, Holmdahl, Eriksson, Bergkvist, Ljungberg, Widner, Nerbrand, Höglund, (2007)	Intervention Medications	This paper describes the implementation of a medication report as an intervention measure to reduce the overall number of medication errors amongst elderly patients discharge from hospital. Patients in the intervention group were given an extensively detailed medication report at discharge. The intervention group was compared with the 'control group' patients of the same age who were not given a medication report who were discharged from the same ward one-year earlier. Results from the study demonstrated that 32% of patients from the intervention group had at least one error, compared with 66% of the control group. 15% of patients in the intervention group had errors considered be of moderate to high risk, compared with 32% in the control group.	Theme: Medication reports Country: Sweden This pre and post intervention study indicates that the use of a medication report can reduce adverse events.
Moss, Flower, Houghton, Moss, Nielsen, Taylor, (2002)	Quantitative Discharge Planning Care Coordination	This paper describes the implementation of a multidisciplinary care coordination team (CCT) to improve the discharge planning process, and to ensure that patients were provided with access to and information about community services. The success of implementation was measured by	Theme: Discharge planning Country: Australia Care coordination by a multidisciplinary team

Table 7: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		analysing hospital admission rates, and surveying staff, patients, carers, and community service providers. Results from the study demonstrated that the rate of hospital admission from the emergency department fell significantly when compared to the 12-month period before the CCT was implemented. Surveys with stakeholders also responded positively to the CCT implementation.	can reduce admissions from the emergency department.
O'Leary, Leibovtiz, Feignlass, Liss, Evans, Kulkarnii, Landler, Baker, (2009)	Intervention eDischarge	This paper describes a pre and post evaluation of an intervention study designed to evaluate the effectiveness of an electronic discharge summary system. As a part of the intervention, an electronic discharge summary template was implemented that included key variables/elements of discharge summaries as indicated by a survey of outpatient physicians. The outcome measure for this study was an outpatient physician survey, which measured satisfaction with the discharge summary. Results from the intervention demonstrated that physician satisfaction with the timeliness and quality of the discharge summary after the implementation was significantly higher than for dictated discharge summaries. After implementation the number of dictated discharges dropped from 47.5% to 10.5%. Results from the study also demonstrated that completeness of the discharge summary improved. For example, information about follow-up tests was included in 52.0% of dictated discharge summaries, and in 75.8% of electronic discharge summaries.	Themes: Evaluation of discharge summaries, eDischarge Country: United States Moving to an electronic discharge summary resulted in improved satisfaction among outpatient physicians.
Pagliari, Donnan, Morrison, Ricketts, Gregor, Sullivan, (2005)	Implementation EHealth Systems	This paper describes the implementation, use and perceptions of the Electronic Clinical Communications Implementations (ECCI) Programme in Scotland. The objective of the ECCI is to facilitate the electronic delivery and use of results, outpatient appointments, transfer of discharge letters and referrals. Retrospective surveys were disseminated to users after the rollout of the ECCI was complete. Results from the study identified a number of benefits: the system facilitated primary care users' ability to access results after the completion of tests, and improved data quality, legibility and delivery on discharge letters.	Theme: Enhanced communication Country: Scotland The ECCI system was not fully implemented by the time the journal article was published.
Paquette-Lamontagne, McLean, Besse,	Implementation Discharge	This paper describes the implementation of a new discharge prescription form (DPF) which integrates admission medications, in-hospital changes and discharge medications. The form was designed to improve the accuracy of	Theme: Medication reports Country: Canada

Table 7: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Cusson, (2001)	Medications	information in community pharmacy profiles and records of patients after discharge. Patients from internal medicine wards from three Canadian hospitals were sampled. Those admitted during January 1999 were sampled into the control group, and received usual care. Those admitted during February 1999 received the new discharge prescription form (DPF). Results from the implementation of the DPF demonstrated a decrease of errors in the number of medications started during hospitalisation, but not prescribed at admission. There was also an observed reduction of errors in the number of medications having a dosage change during hospitalisation. Community pharmacists and physicians were surveyed to assess their satisfaction with the DPF implementation. The survey showed that both physicians and pharmacists were enthusiastic about the DPF, and recognised its benefits in ensuring medication conformity.	Use of a new standardised discharge prescription form resulted in fewer errors in medication documentation.
Schabetsberger, Ammenswerth, Andreatta, Grati, Haux, Lechleitner, Schindlewig, Stark, Vogl, Wilhelmy, Wozak	Implementation of an eDischarge system eDischarge	This paper describes the first step of a three-step strategy to develop a system to deliver discharge letters and diagnostic results between different healthcare providers in Tyrol, Austria. All hospitals in Tyrol were connected to the national health care network in Austria. A secure web portal system was established where electronic discharge summaries could be sent and received from. GPs who were not affiliated with the network were sent discharge summaries by post. Results from the implementation of the electronic discharge demonstrated that 6-8% of all of the discharge summaries were being sent via the new system. The study also found a number of GPs who were unable to import the discharge summaries, which highlighted the need for standardisation of discharge summaries across providers.	Theme: eDischarge Country: Austria This paper demonstrates an interesting approach to developing a network to facilitate the delivery of discharge summaries. More detail is needed to better understand the implementation of this system in order to enable other countries/providers to develop similar systems.

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Alderton, Callen,	Quantitative	This paper describes the satisfaction of general practitioners (GPs) with	Theme: Evaluation of discharge summaries,

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
(2007)	Discharge and eDischarge communication GPs Satisfaction	electronic discharge summaries, particularly the quality of information recorded and the timeliness of their receipt of the summary. Results demonstrated that more than three-quarters of GPs surveyed were satisfied or very satisfied with the information recorded on the discharge summary about intervention, treatment and on-going management, although some GPs gave a 'neutral' or 'unsatisfied/very unsatisfied' response. Other literature had suggested there were issues with the delivery of electronic discharge summaries, but this study found that summaries were delivered to GPs within a reasonable timeframe.	Country: Australia Australian GPs have very satisfied with the use of electronic discharge summaries and the quality of information recorded.
Arora, Prochaska, Farman, D'Arcy, Schwanz, Vinic, Davis, Meltzer, Johnson, (2010)	Quantitative Qualitative Discharge Communication Patients' perspectives	This paper describes the problems which older patients experienced after hospital discharge, and the flow of information between hospitals and the patients' primary care physicians (PCPs) after discharge. Results demonstrated that PCPs are often unaware of their patients' hospital admission. Older patients whose PCPs were unaware of their hospitalisation were more likely to experience at least one post-discharge problem, which was complicated by a lack of communication between hospitals and PCPs. Although patients do not understand the flow of information, they expected better communication between the two healthcare providers.	Theme: Evaluation of discharge performance Country: United States This paper recognises the lack of communication between hospitals and primary care physicians.
Atwal, (2002)	Case Study Qualitative Discharge Planning	This paper describes a study of nurses' perceptions of the hospital discharge process, using a case study approach as well as observations. Results from the study demonstrated that there was an absence of inter-professional education and training about discharge processing or planning. Junior nursing staff often did not understand or know how to carry out discharge planning. Results also demonstrated that medical staff often dominated discussions about discharge plans. The study also found that nursing handover did not facilitate communication; rather, it was detrimental to the patient's continuity of care, as handoffs were rushed and brief.	Theme: Nursing discharge Country: Britain This paper demonstrates the importance of nursing staff as coordinators of care; however, there are no practice development recommendations to implement.
Auslander, Saksolne, Stranger, Ben-Shahar,	Qualitative Quantitative	This paper describes the implementation of discharge planning in 11 Israeli hospitals. The study included a diverse range of patient types: both older and younger patients, patients with different ethnic	Theme: Discharge planning Country: Israel

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Kaplan, (2008)	Management of discharge and planning	backgrounds and central and non-central hospitals. Results from this paper demonstrated that discharge planning was largely successful across these different types of patients and hospitals. Failed discharge planning was attributed to the 'fragmented nature of the health care system in Israel' where the personal needs and household-related services of the discharge planning process were largely unmet. This paper also highlighted the problem of inappropriate referrals, with an increasing number of patients seek services for which they are ineligible.	This paper provides a good overview of the discharge planning processes used in Israel.
Avillach, Joubert, Fieschi, (2008)	Quantitative Discharge Summaries	This paper describes a prospective information processing model to be used for improving the quality and consistency of the coding and billing within standardised discharge summaries. The model extracts terms from medical documents, such as the ICD-10 terms used in the standardised discharge summaries, and the primary diagnosis.	Theme: Data Country: France This paper describes the process of improving coding of primary diagnoses from standardised discharge summaries; however its focus is on improving financial outcomes, rather than patient or safety outcomes.
Bell, Schnipper, Auerbach, Kaboli, Wetterneck, Gonazles, Arora, Zhang, Meltzer, (2008)	Quantitative Discharge communication Primary Care	This paper describes the challenges of care discontinuity for patients who are treated by primary care physicians (PCPs) after hospital discharge. Survey results demonstrated that more than half of the PCPs surveyed in this study did not receive a discharge summary of their patient's acute care admission within two weeks and almost one-quarter did not know their patient was admitted at all.	Theme: Evaluation of discharge summaries Country: Canada This paper reinforces evidence from previous literature in which general practitioners/primary care physicians state they don't receive large volumes of discharge summaries.
Bolton, Mira, Kennedy,Lara (1998)	Qualitative Quantitative Discharge Summary	This paper describes a study of the quality of communication between hospitals and general practitioners (GPs). Results from the study demonstrated that the majority of GPs wanted to be notified of their patient's discharge from hospital, or death in hospital. A telephone call was the preferred method for death or transfer, but GPs expected a letter on discharge. Results also demonstrated that half of the discharge summaries had contact details, such as address and telephone number of the patient's GP.	Theme: Evaluation of discharge summaries Country: Australia This paper, although beyond the identified timeframe of the review provides an important overview of hospital-general practitioner communication in Australia.

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Boockvar, Lui, Goldstein, Nebeker, Siu, Fried, (2008)	Quantitative Medications	This paper reports on a study attempting to predict adverse events following prescribing errors by analysing the medical records of patients transferred between nursing homes and hospitals. Results from the study demonstrated a total number of 1,350 prescription discrepancies from the sample; of those, 65 were discrepancy-related adverse drug events.	Theme: Care transition measures Country: United States This paper adds a difference perspective to the pre-existing literature on adverse events, medications and discharge by looking at the issue from the perspective of transfers *from* nursing homes *to* hospitals.
Bull, Roberts, (2001)	Qualitative Discharge Planning	This paper describes a qualitative study of healthcare professionals to identify components of effective discharge planning for older persons. Results from this study demonstrated that a multidisciplinary team is effective for coordinating discharge planning. Communication amongst healthcare professionals, patients, and carers were important elements of discharge. The results also highlight impediments to effective discharge planning, such as: restrictions of community services; delays between producing a discharge summary and sending it to the GP; and poor understanding about community nurses and their role in continuity of care.	Theme: Discharge planning Country: Australia The paper emphasises the importance of the role of community-based nurses to improve the discharge planning process and ensure continuity of care.
Callen, Alderton, McIntosh, (2008)	Quantitative Qualitative Discharge summary Paper/electronic	This paper compares the quality of electronic and handwritten inpatient discharge summaries. The study sampled 245 handwritten and summaries collected for the purposes of analysis. Results from the study demonstrated that electronic discharge summaries were more likely to contain errors than handwritten summaries. The results also demonstrated that differences in error rate between the two groups were significantly associated with particular doctors completing the discharge summaries. In electronic discharge summaries, fields such as discharge date and additional diagnoses were often missing or incomplete.	Theme: Effectiveness of discharge summary options Country: Australia Results from this study are not generalisable as the number of errors found in the discharge summaries were contained to a small number of doctors generating the summaries.
Callen, McIntosh, Li, (2009)	Quantitative Qualitative	This paper describes the accuracy of medication documentation in hospital discharge summaries. Medication errors in discharge summaries may have a significant impact on patient health outcomes in a community setting. Often, electronic discharge summaries are used	Theme: Evaluation of discharge summaries Country: Australia The process of transcribing medication

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	Discharge summary Paper/electronic Medication	with paper-based records of medications or medication charts. These medication charts are often transcribed and uploaded into the patient's electronic record. This study conducted a retrospective study of handwritten and electronically generated discharge summaries from an Australian hospital. Results from this study demonstrated that there is an almost equal distribution of error between handwritten and transcribed discharge summaries. Also, junior doctors and senior doctors are equally likely to make transcription errors.	information from the process of generating electronic discharge summaries to avoid errors. Quality assurance measures me but undertaken to decrease the number of errors in settings where both handwritten and transcribed systems are used.
Chow, Szeto, (2006)	Qualitative Quantitative Audit Discharge summary	This paper describes a retrospective audit of discharge summaries sampled from a ten-year period. Results from the study demonstrated a number of secular trends, including an increasing length of discharge summary notes between 1994 and 2005. Also during this period, duplication of discharge planning documentation also increased.	Theme: Evaluation of discharge summaries Country: Hong Kong This paper provides some interesting information on trends, but its transferability into practice and improving patient quality and safety is not clear.
Coleman, Smith, Frank, Eilertsen, Thiare, Kramer, (2002)	Qualitative Care Transitions	This paper describes a qualitative study to develop a measure (the Care Transition Measure - CTM) of the quality of patient-centred care during care transitions. Six focus groups were established from a sample of patients who had recently experienced a care transition. The CTM was developed from the results of the focus groups, piloted, and subjected to psychometric testing. Results of the CTM pilot demonstrated that both patients and clinicians regarded the measure as comprehensive, and a valid measure of patients' experiences of care transitioning.	Theme: Care transition measures Country: United States Although further research into the use of the CTM is needed, this paper highlights a tool that may be used in evaluating patients' experiences and needs in care transitioning.
Connolly, Grimshaw, Dodd, Cawthrone, Hulem, Everitt, Tierney, Deaton, (2008)	Qualitative Discharge Planning	This paper describes a series of focus groups conducted amongst hospital-based health professionals (nurses, allied health staff, social workers and a physician) to understand the discharge planning process in a British hospital. Results from the study demonstrated that health care professionals are faced with many challenges, particularly when discharging a complex patient. These challenges are further exacerbated by: a lack of care co-ordination; communication barriers with internal colleagues and external healthcare providers.	Theme: Discharge planning Country: Britain This paper discusses the role and benefits of nursing-led discharge planning.

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Cooke, Arora, Mason, (2003)	Quantitative Discharge Emergency Department	This paper describes a prospective study to develop a model for discharge of patients directly from emergency department triage after a clinical assessment. The model was based on a collection of retrospective electronic discharge data from four emergency departments in the UK. Results from the study demonstrated that between 20% and 37% of patients seen at the four chosen EDs did not use any ED resources except examination and advice. Furthermore, those patients could be treated in pre-hospital settings (GPs, clinics) or at the triage desk.	Theme: Discharge from emergency departments Country: Britain This paper highlights the development a new model to improve emergency department use.
Crossan, Curits, Ong, (2004)	Audit Discharge Summaries	This paper describes a study to examine and improve the recording of information within psychiatric discharge summaries in an adult psychiatric unit. Results from the study demonstrated that information pertaining to follow-up tests and medical history was lacking. The authors suggest that senior clinicians should train junior staff and trainees, and regularly audit discharge summaries.	Theme: Enhanced communication Country: Britain This paper offers a perspective on discharge summaries used in psychiatric units, however, both results and discussion section are limited in scope.
Dunnion, Kelly, (2005)	Qualitative Quantitative Discharge Planning	This paper describes a study of discharge planning for older people leaving the emergency department, and identifies the perceptions and attitudes of staff in the emergency department and primary care. Results from the study demonstrated inconsistencies and discrepancies between the views of staff in the emergency department and in primary care. Primary care staff reported that the level of communication from ED to primary care was unsatisfactory; in contrast, hospital staff reported much higher levels of communication. Both staffing groups, agreed that communication could be improved through the use of a variety of informal and formal measures, such as telephone, fax, and legible discharge summaries.	Theme: Discharge from emergency departments Country: Ireland This paper highlights poor communication as a critical issue between emergency departments and primary care.
Forster, Andrade, van Walraven, (2005)	Quantitative Discharge Summary	This paper describes a retrospective study to detect adverse events and poor health outcomes, drawing from a sample of 245 discharge summaries using a search engine strategy. Summaries that contained any one of the 104 'terms' related to poorer health outcomes were then examined by a physician. Results from this two-stage review	Theme: Data Country: Canada

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		demonstrated that adverse events were more likely to occur in elderly patients, and in those who had a longer period in hospital.	
Forster, Clark, Menard, Dupuis, Chernish, Chandok, Khan, van Walraven, (2004)	Qualitative Discharge	This paper describes a study of adverse events and outcomes caused by medical care amongst patients of a Canadian general internal medicine service. Medical records were analysed and reviewed by independent physicians and structured interview with patients were undertaken. Results from the study demonstrated that 23% of patients sampled in this study experienced one or more adverse event; 72% of these adverse events were medication-related.	Theme: Enhanced communication Country: Canada Similar study to Forster et al. 2003.
Forster, Murff, Peterson, Gandhi, Bates, (2003)	Quantitative Cohort study Discharge	This paper describes a prospective cohort study of patients after discharge to describe the incidence, severity and preventability of adverse events, and to develop strategies to improve patient safety. A review of medical records and a structured interview with patients three weeks after discharge was undertaken. The measurable outcomes assessed were adverse events, preventable adverse events and ameliorable adverse events. Results from this study demonstrated that nearly one fifth of patients experienced an adverse event during the transition from hospital to home. One third of these events were preventable, and another third ameliorable; the remainder were unavoidable, but their severity could have been decreased. The authors of this study provide a number of recommendations, including: better patient-physician communication; introduction of discharge planning and increased contact with a hospitalist after discharge.	Theme: Evaluation of discharge performance Country: Canada This paper demonstrates the need for better communication and documentation to prevent adverse events.
Foss, Askautrud, (2010)	Qualitative Discharge	This paper describes a critical review of the survey instruments used in previous studies to measure the participation of elderly patients in the hospital discharge process. Results from the review highlighted only one study specifically designed to capture the discharge planning process, however this study's focus was on the transfer of information from the physician to the patient and not vice-versa.	Theme: Care transition measures Country: Norway Survey tool not applicable to the whole of discharge planning.
Foster, Paterson, Fairfield, (2002)	Quantitative Discharge	This paper describes an audit of the timeliness of delivery and quantity of information provided on the Immediate Discharge Document (IDD), a tool used to communicate patient discharge information from hospitals	Theme: Rapid communication Country: Canada

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	Communication	to general practitioners. An audit of 244 IDDs demonstrated that up to 30% of basic administrative data, (such as contact details) was missing from the documentation, while diagnosis or condition information was missing from 13%. 60% of IDDs were received within five days of discharge. Only 51% of formal typed discharge summaries arrived within four weeks.	This paper demonstrates the poor quality of discharge summaries and the long delay experienced by general practitioners to receive patient information.
Gandara, Moniz, Ungar, Lee, Chan-Macrae, O'Malley, Schnipper, (2009)	Discharge Quantitative	This paper describes an evaluation of the quality of discharge summaries and the transfer of information for patients discharged from five American acute care hospitals to rehabilitation facilities. Results from the study demonstrated a high level of information missing from discharge documentation. There were discrepancies between preadmission and discharge medication regimes; poorer levels of documentation and 'completeness' amongst academic hospitals compared to community hospitals; and a lack of documentation of medication for patients discharged from surgical services. Further improvements are needed in medication reconciliation before discharge.	Theme: Evaluation of discharge summaries Country: United States This paper highlights the high level of inaccuracy amongst discharge documentation. Improvements in medication reconciliation at admission and upon discharge needed.
Garasen, Johnsen, (2007)	Qualitative Acute Care-Primary Care	This paper evaluates the quality of communication about older patients between hospital physicians and general practitioners. The authors reviewed the discharge and referral letters of 100 patients aged 75 years and over in Norway. Results from the study demonstrated that about that one-fifth of all discharge letters in the sample were missing vital information. There was also a lack of information about who was responsible for follow-up care in 25% of discharge summaries. Results from the study demonstrated that physicians' letters were generally of a poor standard, and contributed to inappropriate care.	Theme: Evaluation of discharge summaries Country: Norway This paper highlights the high level of inaccuracy and poor legibility amongst discharge letters.
Graumlich, Grimmer-Somers, Aldag, (2008)	Quantitative Discharge Planning	This paper describes a study to validate the Modified Physician PREPARED scale to measure qualities of discharge from the outpatient physician perspective. The Modified Physician PREPARED scale is the result of Australian research that investigates approach to best practice barriers in discharge planning for older patients. Results from the paper demonstrate that the scale had acceptable internal consistency. Results	Theme: Care transition measures Country: Australia Discharge planning services need to be aware of community needs and resources.

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		also demonstrated that primary care physicians reported higher scores when they were involved in the discharge planning service and aware of community support.	
Halayamani, Kripalani, Coleman, Schipper, van Walraven, Nagmine, Torcson, Bookwalter, Budnitz, Manning, (2006)	Discharge Review	This paper describes the development of a discharge checklist for adult patients, based on a literature review of all materials relating to discharge. Results from the review identified a number of key elements integral to the discharge process: key findings, test results, condition at discharge, medications, and follow-up appointments. These elements were incorporated into a checklist, and validated by 120 practising hospitalists, nurses, case managers and social workers.	Theme: Impact on patient outcomes Country: Canada The discharge checklist in this paper demonstrates a high level of transferability into practice, which clinicians and policymakers can use for discharge policies and practices.
Hellesø, (2006)	Qualitative Discharge Communication	This paper describes a study of acute care nurses' use of language in nursing discharge notes. It also examines the similarities in completeness, structure and content between paper and electronic discharge notes. Results from the study demonstrate that the use of language in both paper-based and electronic discharge nursing notes is dense, and laden with nursing terminology. The results of the study also found that electronic discharge note templates enabled nurses to be more specific and focused in their patient assessments. Paper-based nursing notes tended to be more interpersonal.	Theme: Nursing discharge Country: Sweden Electronic discharge summary systems improve nurses' ability to carry out key tasks.
Hopcroft, Calvely, (2008)	Qualitative Quantitative eDischarge	This paper describes a study in New Zealand into ways to improve electronic discharge summaries from the perspective of general practitioners. Focus groups and online questionnaires were used to survey GPs. Results from the study demonstrated that 72% of GPs are satisfied with the current level of detail provided by the electronic discharge summary, while one-fifth of respondents agreed that summaries included too much detail. Three main themes emerged from the free-text comments. Electronic discharge summaries were: poorly formatted; contained too much information about medical tests; and needed more information in other areas, such as medical history.	Theme: Discharge summary requirements and expectations Country: New Zealand New Zealand-based GPs are satisfied with the use and benefits of an electronic discharge system.
Jansen, Grant, (2003)	Qualitative	This paper describes a retrospective study of 300 electronic discharge summaries from a New South Wales hospital to assess their quality.	Theme: Evaluation of discharge summaries

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	Quantitative eDischarge	Results from the study demonstrated that 29% of all discharge summaries were incomplete or misleading. One-quarter of all summaries were lacking detail, or unacceptable overall. Results also demonstrated that almost half of all discharge summaries included inaccurate or wrongly coded diagnoses. Other summaries failed to mention specific issues relevant to general practitioners (such as follow-up tests).	Country: Australia A quarter of all electronic discharge summaries were incomplete or unacceptable. Follow-up tests and information omitted from summaries.
Le Doare, Benerjee, Oldfield, (2009)	Quantitative Discharge Communication	This paper describes a retrospective study of patient referral letters and paired discharge summaries for all patients admitted to hospital following referral by their GP. Results from the study demonstrate 58% of patients' referral letters to the accident and emergency department were missing from the medical record. Of the 773 referrals to ED, only 37% had a paired GP referral letter and discharge summary. Of the discharge summaries, two-thirds were handwritten, and 96% of those were legible. Half of the discharge diagnoses matched that given by the referring GP. Only four discharge summaries from the sample were wholly complete; the remainder had information missing from at least one category, especially information (such as dose changes) relating to medication usage	Theme: Evaluation of discharge performance Country: Britain This study is unique in that it provides a closer examination the process and flow of information between referral from a GP to hospital and then from hospital to GP. However, this study was undertaken a single sit hospital, which may limit its generalisability.
McKenna, Keeney, Glenn, Gordon, (2000)	Qualitative Discharge Planning	This paper describes a study to analyse all discharge policies and procedures used in Northern Ireland hospitals, to better understand the discharge planning process. A questionnaire was administered to both hospital and community-based nurses. Questionnaires were altered slightly for setting to allow for differences in perspective. This was followed by semi-structured interviews with a smaller sample of nurses. Results from the study demonstrate that there was a large discrepancy between the views of hospital and community-based nurses. Half of hospital nurses stated that the patient is always referred the relevant agency, or that patients are always given relevant contact details. In contrast, only one community nurse agreed that was the case. These discrepancies were mirrored in other questions such as discharge communication timeliness: 55% of hospital nurses stated that the discharge communiqué was dispatched on the day of discharge while	Theme: Evaluation of discharge performance Country: Northern Ireland This paper highlights the differences experienced by both hospital and community-based nurses in discharge planning. This paper lists a number of recommendations, namely those from community-based nurses, about suggests for improving the discharge planning process, such as standardizing discharge policies and creating a discharge team with the assistance of community-based nurses.

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		only 27% of community nurses agreed.	
Melby, Hellesø, (2010)	Qualitative Electronic discharge summaries Acute care-community care	This paper describes the use of electronic discharge summaries between hospital and community care settings. Results found that the electronic discharge summary improved workflow, and helped community care staff to interact with patients from the hospital sector. It also increased the legibility of discharge summaries.	Theme: eDischarge Country: Norway This paper discusses the benefits and improvements of an electronic discharge system.
Morris, Chen	Quantitative Acute care-community care	This paper describes the lack of communication of medication information for patients discharged from the acute care setting to GPs and community pharmacists. This paper also describes case conferencing as a process to improve the dialogue between the two groups. Results from multidisciplinary discharge case conferences highlighted a need for better written communication between providers to resolve errors and issues on discharge summaries, particularly the reason for medication changes made in the hospital setting.	Theme: Enhanced communication Country: Australia Written justifications needed for primary care health care providers when treating patients who have had medication changes during hospital stays.
Murff, Forster, Peterson, Friskio, Heiman, Bates, (2003)	Quantitative Cohort study Discharge Summaries	This paper describes a retrospective study of 424 discharge summaries using a computerised screening tool for 'trigger words' that would indicate an adverse medical event. Discharge summaries that included any of the trigger words were forwarded to independent physicians for review. This study detected 204 adverse events in 131 patients. The most common adverse events were medication-related. The study did note, however, that it can be difficult to detect adverse using discharge summaries, because clinicians do not always report events.	Theme: Data Country: Canada Medication-related errors are likely to cause adverse events upon discharge from hospital.
Naidu D V, Rejavelu, Rajogopalan, (2008)	Quantitative Discharge Summary	This paper describes a study to audit of the use of a standardised preformatted form for discharge summaries for patients discharged from an emergency department in India. Previously, patients' discharge documentation was completed on a hospital letterhead. Results from the study demonstrated that the legibility of discharge summaries was particularly high in the diagnostic, medication and post-discharge care instructions. Results also found that 83% of discharge summaries were missing test results and date of birth was absent from all discharge	Theme: Evaluation of discharge summaries Country: India This paper would have demonstrated the benefits of a standardised discharge summary had it used a randomised controlled trial methodology or a retrospective study of the new discharge process and the older discharge process.

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		summaries.	
O'Leary, Leibovitz, Feinglass, Liss, Baker, (2006)	Quantitative Discharge Summary	This paper describes a survey of outpatient physicians' satisfaction with discharge summaries. Results from the study demonstrated that only 19% of physicians were satisfied with the timeliness of discharge summaries; 33% of participants indicated that more than half of their patients come for consultations before the discharge summary has arrived. Only a third were satisfied with the quality of discharge summaries and 17% believed that discharge summaries often missed critical information. Results also demonstrated that 41% of physicians believed that their patient had experienced an adverse event in the last six months because of an error related to poor transfer of information on discharge from hospital.	Theme: Evaluation of discharge summaries Country: Canada Clinicians feel that adverse events amongst their patients are attributable to poor transfer of information practices upon discharge from hospital.
Paterson, Allegra, (1999)	Quantitative Discharge Summary	This paper describes a study to assess the timing, legibility and completeness of handwritten, faxed discharge summaries between hospitals and family physicians. Physicians were also surveyed to obtain their opinions about a standardised discharge summary form. Results from the study demonstrated that 8% of records did not list a family physician, and of those that did, 20% did not identify a fax number. 83% of summaries were received within three weeks of discharge. Amongst those, 86% were received within 48 hours; 92% were legible and 88% were complete.	Theme: Evaluation of discharge summaries Country: Canada This study whilst outside the timeframe of the review demonstrates the effectiveness of handwritten and faxed discharge summaries. High-levels of legibility amongst physicians may be due to the fact that participants were aware of study.
Payne, Kerr, Hawker, Hardey, Powell, (2002)	Systematic Review Transfer of information	This paper reviews literature on the communication and transfer of information about older patients between social and health care providers. Results from the review demonstrate that appropriate information is often not reported on discharge to community nurses and social services (One paper reviewed found that 18% of discharge summaries never arrived). The review also found that discharge information, when provided, was 'too little and too late'. The review also found that there was a lack of coordination or responsibility to oversee the transfer of information between providers.	Theme: Evaluation of discharge summaries Country: Britain No recommendations for practice.

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Perren, Previsdomini, Ceurtti, Soldini, Donghi, Marone, (2009)	Quantitative Medications	This paper describes a three-month prospective observational review of discharge summaries from an internal medicine department to evaluate the incidence and types of drug omissions and unjustified medications. Results from the study indicated that 34% of discharge summaries sampled were error-free. The remaining 66% had a total of 1,012 inconsistencies. Of those, 19% were considered harmful. The study also found 393 drug omissions, of which 58% were not defendable, and 32% had the potential for harm. The study also found that discharge summaries were deficient in providing information about medications.	Theme: Evaluation of discharge performance Country: Switzerland This paper does not connect the medical errors on discharge summaries with actual clinical outcomes to truly determine the impact of medication errors.
Pillai, Thomas, Garg, (2004)	Qualitative Quantitative eDischarge	This paper describes a survey of Scottish general practitioners' attitudes to electronic immediate discharge documents (e-IDD). Results from the survey demonstrated that a majority of GPs still relied on the mail-out discharge summary in conjunction with the e-IDD. Only a third of respondents used the e-IDD solely, Just under 50% of GPs expressed concern with confidential and security of patient information. Results also demonstrated that 30% of GPs felt that the information on the e-IDD was sufficient; 50% felt that the information on medications was insufficient; and, 73% felt that there was little information provided about patient follow-up.	Theme: Rapid communication Country: Scotland This paper demonstrates the successful use and uptake of an electronic health records system. This system may be adaptable to other countries for use.
Roy, Poon, Karson, Ladak-Merchant, Johnson, Maviglia, Gandhi, (2005)	Quantitative Discharge Communication	This paper describes the prevalence and awareness of potentially actionable tests results returning after hospital discharge. Results from the study demonstrated that 41% of patients' test results returned after discharge. Of these 9% to 11% were actionable. Results from surveys of primary care physicians showed that 66% of physicians were unaware that their patients' test results were ready. Of the actionable test results, physicians agreed with the research team that 12% of them required urgent action.	Theme: Evaluation of discharge performance Country: United States This paper highlights a significant amount of actionable follow-up tests that are received after discharge. Better communication between departments and providers is needed.
Singh, Thomas, Mani, Sittig, Arora, Espadas, Kham, Petersen, (2009)	Quantitative eDischarge	This paper describes a study of the timeliness of follow-up diagnostic test results in the community setting. Receipt of test results was tracked within two weeks of transmission, followed by a review of electronic health records to assess follow-up actions. Results demonstrated that almost one-fifth (18%) of all diagnosis tests were unacknowledged. Test	Theme: Evaluation of discharge performance Country: Australia This paper provides an overview of the issues, but does not consider in great detail why there is a

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		results have a higher risk of being unacknowledged when the ordering healthcare professionals were trainees. Results also demonstrated that almost all follow-up tests that were deemed 'critical' were often ignored, when acknowledged by health care professionals as being read.	significant number of pending tests not being transferred.
Stiell, Forster, Stiell, van Walraven, (2005)	Quantitative Qualitative Continuity of Care	This paper describes a survey of emergency department chiefs to determine the most common method of disseminating patient information to community-based physicians. This survey measured the quality of the system used, and also elicited suggestions for improving communication systems within the ED. Results from the survey demonstrated that post was the most common method of delivery, followed by physicians' hospital mailboxes. ED chiefs perceived that their system of communication was either excellent or satisfactory. Views about methods to improve communication systems in the ED focused on the use of electronic systems to deliver patient information.	Theme: Discharge from emergency departments Country: Canada This study is not generalisable and relies on the opinions and perceptions of emergency department chiefs, which do not reflect the realities of communication systems between EDs and community physicians.
van der Kam, de Jong, Tromp, Moorman, van der Lei, (2001)	Qualitative Medications	This paper describes a study to assess whether electronic communication between GPs and pharmacists provides better information about medication than paper-based communication when a patient is admitted to hospital. Data was collected from the patient, from the GP, and from the pharmacist. A group of GPs and pharmacists who used electronic communication was compared with a group who did not. Results from the study demonstrated that there was no significant difference between the electronic or paper-based group after discharge. The study also reported that patients do not report over the counter drugs.	Theme: Effectiveness of discharge summary options Country: Netherlands This study provides a great depth of detail in the issues of medication reporting, but does not adequately address this issue in relation to discharge.
van Walraven, Dhalla, Bell, Etchells, Stiell, Zarnke, Austin, Forster, (2010)	Quantitative Unplanned Readmission	This paper describes a prospective cohort study to derive and validate an index which would enable hospitals to predict a patient's risk of death or unplanned readmissions within 30 days of discharge to the community. The index was devised from 4,812 patients from general and surgical wards across 11 Ontario hospitals. Results from the cohort study found that of the 4,812 patients, 8% were either readmitted to hospital within 30 days or died. The study found four key variables which were associated with these two outcomes: length of stay, acuity	Theme: Care transition measures Country: Canada This is a comprehensive paper that covers the issues adequately and also utilises a number of hospital sites to draw a wide ranging sample for generalisability.

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		of admission, co-morbidity of the patient, and emergency department use. The index was externally validated across 1,000,000 randomly selected patients. Results found that the index was very accurate in predicting these two outcomes.	
van Walraven, Mamdani, Fang, Austin, (2004)	Quantitative Continuity of Care	This paper describes a cohort study of patients discharged from hospital to assess whether early post-discharge outcomes are changed when patients are seen after discharge by the physicians who had treated them in hospital. The study demonstrated that patients who were seen by the physicians who treated them in hospital were less likely to die, or to get urgently readmitted to hospital	Theme: Impact on patient outcomes Country: Canada Not generalisable or transferrable to the Australian setting.
van Walraven, Oake, Jennings, Forster, (2010)	Systematic and critical review Continuity of Care	This paper describes a systematic and critical review of studies to determine the association between continuity of care and patient outcomes. Results demonstrated that 18 of the studies selected for review demonstrated a very high association between the continuity of care and patient health outcomes, particularly when continuity of care is carried across health providers. The studies also demonstrated a very high association between continuity of care and patient satisfaction.	Theme: Impact on patient outcomes Country: Canada This paper demonstrates the link between continuity of care and patient outcomes, but highlights the need to determine whether information or management continuity improves outcomes.
van Walraven, Rokosh, (1999)	Quantitative Discharge Summaries	This paper describes a survey of hospital and family physicians' perceptions of what constitutes a high-quality discharge summary. Results of the study demonstrated there are few differences between hospital and family physicians' perceptions of a high-quality discharge summary. Both groups of physicians preferred complete information for content having limited scope, (such as medications and allergies) but preferred only relevant data on items where the details were potentially involved and in-depth, such as medical history. Family physicians prefer faster delivery and shorter discharge summaries than their hospital counterparts. Results also demonstrated that family physicians wanted more information on discharge summaries as well.	Theme: Discharge summary requirements and expectations Country: Canada This paper, despite being outside the specified timeframe of the review, is a critical piece of literature-related to discharge that provides a understanding of physician's expectations of high-quality discharge summaries.
van Walraven, Seth, Laupacis, (2002)	Quantitative Discharge	This paper describes how often hospital discharges were available to general practitioners treating the same patient in a community care	Theme: Effectiveness of discharge summary options

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	Communication	setting. Results demonstrated that only 15 percent of discharge summaries were available for follow-up visits. Summaries were often not available because over half of them were sent to the wrong GP.	Country: Canada Poor transfer of information between providers.
van Walraven, Weinberg, (1995)	Quantitative Qualitative Discharge Summary	This paper reviews a descriptive study to assess the completeness of hospital discharge summaries and the efficiency of the system in two Canadian teaching hospitals. Completeness and efficiency (time taken to generate summary, and whether the physician received it) were measured. Results from the study demonstrated that 42.9% of summaries did not include significant tests or results. The proportion of summaries missing data elements ranged from less than 1% to 35%. Fewer than half (49.1%) of summaries were received by the family physician.	Theme: Evaluation of discharge summaries Country: Canada This early study is a critical piece of literature found in the bulk of literature on discharge.
Watts, Gardner, (2005)	Qualitative Discharge Planning	This paper describes a study of nurses' perceptions of discharge planning. Results from qualitative interviews demonstrated that all nurses interviewed were involved in the discharge planning process, but levels of involvement differed amongst interviewees. The majority of interviewees believed that nurses coordinated the discharge planning process. Participants also expressed the importance of patients in enhancing or in some cases, impeding the discharge planning process.	Theme: Nursing discharge Country: Australia This paper highlights the changes in medication reconciliation that can occur during the admission of patients.
Weissman, Schneider, Weingart, Epstein, David-Kasdan, Feilbelmann, Annas, Ridley, Kirle, (2008)	Continuity of Care Qualitative	This paper describes a comparison of adverse events reported in post-discharge patient interviews with those indentified by medical record review. Results from 988 patient interviews and records found that 23% had one adverse event detected in an interview, and 11% had one identified by medical record. There was no significant correlation, however, between results featured in medical reviews and post-discharge interviews.	Theme: Data Country: United States This study has a lack of generalisability.
Were, Li, Keterswon, Cadwallader, Asinwa, Khan, Rosenman, (2009)	Quantitative Discharge Summaries	This paper reviews a retrospective study to determine the adequacy of discharge summaries from a North American hospital in detailing follow-up tests and pending results. Results from the study concluded that discharge summaries cannot be used an indicator of outstanding or pending medical tests – only 16% of pending tests were recorded in the discharge summaries sampled. Furthermore, there was no correlation	Theme: Evaluation of discharge summaries Country: United States This paper indicates there are communication issues with the delivery of follow-up test and

Table 8: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		between documentation of tests and the number of days it took for results to return. Only half of the discharge summaries named the primary care physician responsible for the patient. Fewer than half (48%) of pending tests returned with actionable results had information about the PCP.	documentation after discharge.
Wilson, Ruscoe, Chapman, Miller, (2001)	Quantitative Qualitative Discharge Summaries	This paper describes a retrospective study of discharge summaries sent from a hospital in NSW to general practitioners to examine their production, quality, timeliness and accuracy. Patients' general practitioners were interviewed following the discharge. Results demonstrated that only 27.1% of discharge summaries were received by general practitioners. Almost a third of all discharge summaries received contained errors and inaccuracies, such as medication errors (omissions) and a lack of information about follow-up tests.	Theme: Evaluation of discharge summaries Country: Australia Low number of actual discharge summaries received makes it difficult to draw generalisable conclusions about the key objectives of this paper, namely the quality of discharge summaries.

Table 9: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Anderson, Helms, (2000)	Editorial Continuity of Care	This editorial discusses the importance of communication for achieving patient continuity of care. The editorial lists a number of recommendations to improve communication between inter-organisational professionals and external healthcare providers, such as community physicians.
Atherton, Car, Meyer, (2009)	EHealth Communication Research Protocol	This research protocol for a systematic review of e-mail for clinical communication between patients and healthcare professionals briefly discusses the benefits and disadvantages of e-mail communication for healthcare professionals and patients.
Bates, (2010)	Review EHealth Records Continuity of Care	This review discusses the importance of electronic health records and their role in care coordination in relation to previous studies undertaken in this area. The review makes note of information overflow in electronic records, and the need to 'strain out' much of this extraneous information to better facilitate the sharing of electronic health records between healthcare providers.

Table 9: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Billings, Kowalski, (2008)	Commentary Discharge Summary	This commentary discusses the importance of the Care Transitions Intervention (CTI) an approach which trains registered nurses (RNs) to more effectively coordinate care during hospital admission, and to organise discharge planning for patients. The commentary also provides a list of critical key points for nurses to remember when coordinating discharge plans.
Bodenheimer, (2007)	Editorial Review of discharge issues	This editorial discusses the importance of care coordination for primary care physicians (PCPs), and the challenges they face in undertaking this role, namely the lack of remuneration and time associated with administrative duties of care coordination.
Bolton (1999)	Qualitative Review eDischarge impact/improvement	This review discusses the importance and potential of information technologies to improve discharge communications. The review highlights a number of benefits of electronic discharge summaries, such as timeliness, increased GP satisfaction and reduced errors.
Cabana, Jee, (2004)	Review Continuity of care	This review synthesises literature relating to sustained continuity of care and its impact upon quality patient care. Results from the review demonstrate that sustained community care has many benefits, including improved patient satisfaction, decreases in rehospitalisation rates and improve overall health outcomes. The review also identifies continuity of care as being particularly beneficial for patients with chronic illnesses who often use multiple health providers and services.
Clancy, (2009)	Commentary Patient education Discharge improvement/tools	This commentary discusses the need to improve current discharge planning processes in North American hospitals to reduce hospital costs and improve patient satisfaction. The commentary also recognises a number of challenges associated with the patient discharge process and discharge summaries: medication errors, lack of critical data and time delays between delivery and receipt. The commentary also identifies 11 strategies to improve the discharge process, some of which include: educating patients; delegating discharge responsibilities to a clinician; expediting discharge summaries to GPs; and follow-up with patients post-discharge.
Coleman, Beresnon, (2004)	Editorial	This editorial describes the challenges and opportunities for improving the quality of transitional care. This editorial suggests that issues of poor transitional care can be solved with further funding to break down barriers and improve quality transfers.
Cotera-Perez-Perez, (2007)	Review	This paper reviews the concept of discharge planning, the role of the discharge planner and also reviews the financial impact of discharging planning. The paper also reviews the role and

Table 9: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
	Discharge Planning	responsibility of patients in the discharge planning process, and highlights the importance of discharge planning to the health outcomes of patients as well as the financial well-being of hospitals.
Craig, Callen, Marks, Saddik, Bromley, (2007)	Electronic Discharge Summaries	This paper reviews the current practice of electronic discharge summaries in Australia. Findings from the review demonstrate the importance of the electronic discharge summaries as a tool to improve communication between primary and secondary care, which ultimately enhance the continuity of care for patients. The review also notes that electronic discharge summaries are more timely than other paper-based methods. Electronic discharge summaries also eliminate issues with legibility, and provide a way of standardising summaries.
Dimmond, (2005)	Editorial EHealth	This editorial discusses the development and implementation of the National Health Service (UK) National Programme for IT to implement electronic health and patient records.
Dougherty, (1999)	Editorial Discharge Summaries	This editorial reviews van Walraven's (1999) paper on dictated and database-generated discharge summaries. More research into the timely transmission and incompletion of discharge summaries is recommended.
Dunn, Markoff	Editorial Communication	This editorial discusses the problem of inadequate physician-to-physician communication during care transitions.
Goldman, Pantilat, Whitcomb, (2001)	Editorial	This editorial proposes six principles to improve communication between hospitals and primary care physicians to ensure better patient outcomes: improved communication with primary care physicians; notifying PCPs of admission and discharge; actively involving the patient in decisions, and disseminating details of relevant follow-up care to both the patient and physician.
Haraden, Resear, (2004)	Editorial Discharge	This editorial discusses patient flows in North American hospitals, with a particular focus on emergency departments. The editorial recommends implementing a number of changes to the discharge process to improve patient flows They include: scheduling the discharge in advance, organising and collaborating with ancillary staff and services, and implementing a process in which a discharge coordinator oversees the discharge process.
Holland, Harris, (2007)	Review Discharge Planning	This review draws on key literature to provide an in-depth discussion of the key concepts of discharge planning, transitional care, co-ordination of care and continuity of care from the hospital perspective. Findings from the review are that the concepts of discharge planning,

Table 9: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
		transitional care, coordination of care and continuity of care are interrelated, but progress in these areas will not be achieved until there is a consensus on the definition of these terms.
Leff, Boult (2004)	Commentary Discharge	This commentary discuses the study by Forster *et* al. (2003) into adverse medical events after discharge. The commentary also recognises the 'silo' nature of healthcare providers and institutions, which greatly impinges on continuity of care, especially for older people, which may contribute to adverse events after discharge.
Snow, Beck, Budnitz, Miller, Potter, Wears, Weiss, Williams, (2009)	Policy Statement Continuity of Care Discharge Planning	This policy statement from the American College of Physicians, Society of General Internal Medicine, Society of Hospital Medicine, American Geriatrics Society, American College of Emergency Physicians and Society for Academic Emergency Medicine provides a recommended set of principles and standards for managing transitions between inpatient and outpatient settings. These recommendations specify greater communication between clinicians to ensure that information exchange between providers is timely, accurate and of high quality. The policy statement also recommends that care plans and records of transition should be mandatory, and should include a minimal data set: diagnosis, medication, physician contact details, cognitive status and pending results. The policy statement also recommends that a communication infrastructure be developed to facilitate communication across providers.
Steffen, Kosters, Becker, Puschner, (2009)	Systematic Review Discharge Planning	This paper describes a systematic review of discharge planning in mental health care literature to determine the significance and quality of discharge planning interventions from inpatient to outpatient treatment in mental health. Results from the review demonstrate that some intervention studies previously undertaken have shown that readmissions were less likely to occur when discharge planning was prepared during in-patient treatment.
Steffen, Kosters, Becker, Puschner, (2009)	Systematic Review Discharge Planning	This paper describes a systematic review of discharge planning in mental health care literature to determine the significance and quality of discharge planning interventions in mental health care from inpatient to outpatient treatment. Results from the review demonstrate that some intervention studies previously undertaken have shown readmissions to be less likely when discharge planning is prepared during inpatient treatment.
Sumi, Satoh, Yamashita, Ohtuska, Skizawa (2001)	Commentary Discharge Summaries	This paper reviews work previously undertaken by van Walraven and Weinberg (1995) on improving the quality of discharge summaries. To address the problems identified by van Walraven and Weinberg, the authors suggest that routine audits of discharge summaries be undertaken to improve completeness.

Table 9: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Williams, Coleman, (2009)	Editorial Discharge	This editorial discusses the importance of effective care transitions and reiterates some key findings from previous research into discharge and health outcomes. The editorial also makes note of strategies to ensure safe transitions between providers, such as Project BOOST (Better Outcomes for Older Adults through Safe Transitions) and the use of care transition coaches.

Table 10: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 5		
Author(s)	**Type: Report**	**Commentary**
National eHealth Transition Authority	Business requirements Solution design Core information components	Australia's National eHealth Transition Authority (NEHTA) has developed a suite of documents and components, focussed on technical implementation, to support the standards-based communication about patient discharge.

3.6.3 Discharge - Evidence Gaps Tables

Table 11: Evidence Gaps - Category 1

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Coleman, Parry, Chalmers, Min, (2006)	Care Transitions	Randomised Controlled Trial	This paper describes a randomised controlled trial of a care transitions intervention designed to encourage patients and caregivers to participate more actively in care transitions. On admission, 750 patients were randomised to either the intervention group or 'usual care' group. The intervention group received: tools to promote cross-site communication (personal healthcare record); encouragement to take a more active role in their care; and, support from a transitions coach. The effectiveness of the intervention was measured by readmission rates. Results from the study demonstrated that patients in the intervention group had lower readmission rates than their 'usual care' counterparts. Results also found that patients were better equipped to self-manage their condition and medications beyond the transition.	Theme: Patient knowledge This is a well designed study that demonstrates the importance of self-management in improving discharge outcomes.
Manning, O'Meara, Williams, Rahman, Tammel, Myhre, Carter, (2007)	Medications	Randomised Controlled Trial (RCT)	This paper describes a randomised controlled trial to assess the impact of a newly designed medication discharge education tool, Durable Display of Discharge (3D), on: patient satisfaction with discharge medication regimes; understanding of medications; and a reduction of medication-related errors. The 3D tool features a space in which medications can be affixed and displayed; trade name of medication; unit strength; number of units to be taken; purpose of medications; and, comments. Patients over the age of 20 with three or more discharge medications were eligible for the intervention study. Patients who were not in the intervention study were administered the Medication Discharge Worksheet, a personalised, standard patient tool that lists medications and administration times. Follow-up surveys were undertaken between seven and 14 days after discharge. Results of the study demonstrated there was no statistically significant difference in patient satisfaction or self-reported medication errors between the intervention (3D) and non-intervention (MDW) groups,	Theme: Patient knowledge This randomised controlled trial showed no benefits or improvements.

Table 11: Evidence Gaps - Category 1				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
			however the 3D group was associated with greater understandings of medications.	

Table 12: Evidence Gaps - Category 2			
Author(s)	**Study Type**	**Outcomes**	**Comments**
			No Category 2 evidence was found relating to evidence gaps

Table 13: Evidence Gaps - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Makaryus, Friedman, (2005)	Qualitative Discharge Planning	This paper describes a study to ascertain whether patients knew about their discharge diagnosis, treatment plan and medications at discharge. Just over one-quarter of patients surveyed were able to list all of their discharge medications and 37% were able to recount the usage of their medications. Most patients (72%) were unable to list the names of all their medications.	Theme: Patient knowledge
Middleton, Appleberg, Girgis, Ward, (2004)	Qualitative Discharge	This paper describes a qualitative study to determine patients' knowledge, prior to admission, about hospitalisation and their perceptions of 'readiness' to leave hospital. It also examines the usefulness of discharge communications between patients and GPs. Results from the study demonstrated that the majority (84.2%) of patients were not informed of their length of stay and similarly 87.0% of patients described themselves as being 'ready to go home' upon discharge. Only 23.7% of GPs received both a discharge summary and a personalised letter from the patient's surgeon. The study also	Theme: Patient knowledge This paper demonstrates the usefulness of direct information from surgeons as opposed to the clinical information presented in discharge letters.

Table 13: Evidence Gaps - Category 3			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		revealed that GPs rated surgeons' letters more useful than discharge summaries.	
Pantilat, Lindenauer, Katz, Wachter, (2001)	Quantitative Discharge Communication	This paper describes a study of the attitudes of primary care physicians (PCPs) towards communication with hospitalists. Results from the survey demonstrated that PCPs overwhelmingly prefer to communicate with hospitalists on admission and discharge by telephone. Only a third of the discharge summaries which they received arrived before the patient's appointment. 84% of PCPs agreed that the discharge summaries they received were too detailed, compared to 5% who felt they were not detailed enough.	Theme: Other communication This paper is at odds with the bulk of the literature arguing that discharge summaries are too detailed.

Table 14: Evidence Gaps - Category 4		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Archie, Boren, (2009)	Qualitative Systematic Review Discharge planning	This paper reviews literature relating to the discharge planning process of sharing information between the patients, caregivers and healthcare providers. Results from the review demonstrated that the discharge process is heavily influenced by the information needs of patients, caregivers and healthcare providers. Improved information sharing across the three stakeholder groups will improve the discharge planning process and health outcomes.

Table 15: Evidence Gaps - Category 5		
Author(s)	**Type: Report**	**Commentary**
		No Category 5 evidence was found relating to evidence gaps

4. Part 2: A STRUCTURED EVIDENCE-BASED LITERATURE REVIEW ON REFERRAL

For the purposes of this review Referral has been broadly defined as 'the processes, tools and techniques by which a patient (and/or the provision of all or part of their care) is transferred between health professionals and/or health provider organisations to facilitate access to services and/or advice that the referring source is unable or unwilling to provide'.

4.1. Introduction

This section provides an introduction to the structured evidence based review on referral. It complements the methodology section above and details some specific issues pertaining to the review on referral.

The six over-arching questions structuring this review were:

1. What is the current practice to date along with barriers to, and facilitators of success, relating to:
    a. Safety (including high risk scenarios);
    b. Efficiency (costs and benefits);
    c. Sustainability and quality (effectiveness).
2. What high risk scenarios can be identified from the literature?
3. What interventions in this area were most effective?
4. What were the critical success factors or limitations of their effectiveness?
5. Is there evidence of sustainability and transferability for these interventions?
6. What are the gaps in evidence is this area?

In this regard this section provides some more detailed information on the methodological approach used in relation to the scope, identified referrals scenarios, key search terms and the specific exclusion criteria utilised in relation to the filtering, selection and analysis of the final core publications to be included.

Scope

Definitional ambiguity and the range of uses of the term referral (even within a health/medical context) posed significant challenges for filtering, selection and analysis of relevant literature.

Examples of initial basic searches of major databases include:

An initial PUBMED search on the terms referral and medical referral identified 33,347 and 12,325 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 3,645

An initial ProQuest search on the terms referral and medical referral identified 10,982 and 27 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 667

An initial CINAHL search on the terms referral and medical referral identified 14,312 and 40 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 1,250

An initial Scopus search on the terms referral and medical referral identified 39,395 and 15,452 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 357.

The search terms used were as follows:

Based on MeSH keywords the following terms were used in conducting the searches for referral:

- Referral;
- Referrals;
- Clinical Referral;
- Referral Process;
- Delayed Referral;
- Under-referral;
- Late referral;
- Referral Failure;
- Medical Second Opinion;
- Transfer of Care;
- Patient Dumping; and
- eReferral

An additional strategy employed was to use citation tracking from high-value contributions to the review.

The eHSRG also identified the following key referral scenarios to complement the search terms and refine the search strategy. These scenarios are:

- GP to Ambulance;
- Ambulance to Emergency Department;
- Inter-departmental transfer admissions/referrals (such as Emergency Department to Intensive Care Unit);
- Inter-profession admissions/referrals within and between hospitals;
- Community to Hospital admissions;
- General Practice to outpatient clinic referrals;
- Police to Hospital admissions;
- GP to Specialist referrals;

Literature analysed but subsequently excluded

After an initial search using key terms listed above, papers were briefly evaluated to identify those that were outside the scope of the review, i.e. not related to the referral process.

The analysis of subsequent papers identified a number that, while matching the search terms, had very limited, if any, relevance to the questions being posed (i.e. often only a single reference made to referral in the paper).

Given the number of papers that were excluded from the referral section of the review because their content had limited or no relevance to the research questions and/or because these papers did not contribute to understanding referral processes, tools or techniques it was consider useful to provide some examples.

Examples of excluded papers (that might appear superficially to be of direct relevance to this review) are presented below along with the basic reasoning for the paper's exclusion.

Education purposes

Akbari, Mayhew, Al-Alwai Manal, Grimshaw, Winkens, Glidewell, Pritchard, Thomas and Fraser (2008), *Interventions to improve outpatient referrals from primary care to secondary care,* reviews interventions intended to change outpatient referral rates or to address inappropriate outpatient referrals. This Cochrane review is based on older papers about education on interventions and the impact these educational interventions have on referral rates from primary care. This paper is largely concerned with policy interventions and does not discuss communication within the referral process.

Disease specific

Scully, Cuh, Siriwardena, Wormald and Kotecha (2009), *The quality of optometrists' referral letters for glaucoma,* explores the quality of content of optometrist-initiated glaucoma referral letters. Within the study the minimum standard of information was determined and these standards were applied to a prospective review of optometrist-derived referrals for glaucoma or suspected glaucoma cases. The focus of this review was confined to disease specific information requirements.

This finally produced the following figures:

> A total of 152 source materials were identified for assessment, categorisation and inclusion in the review. From these materials a subset of 25 core publications were selected for further discussion and presentation under identified themes within the body of the review.

We have not included referrals within facilities in the scope of the review.

4.2. High Risk Scenarios and Patient Safety in Referral

This section presents and discusses the major themes, issues and results identified within the literature pertaining to high risk scenarios in referral. The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

The **major evidence based themes** identified in the literature relating to high risk scenarios and patient safety around referral processes can be summarised as follows:

- **Delayed and late referrals:** the literature provides evidence of the risks associated with the timing of referrals within the palliative care environment and the impact delayed or late referrals may have on the quality of care. The literature also points to reducing patient risk through the development of referral criteria within palliative care, and ensuring the timing of the referral is not dependant on the age of the patients or type of diseases present.
- **Referral failures:** the literature points to the risks for patients in the GP to outpatient hospital clinic referral process. The literature also points to the impact of minimum delays to appointments and improved communication between hospitals and general practitioners and how this would allow general practitioners to make appropriate referrals and reduce the risk of non-compliance. The literature also acknowledges that the referral process is a complex one that often fails.
- **Communication content:** the literature points to risks associated with the potential increase of adverse events experienced by older patients as a result of missing information. Additionally, the literature points to a disagreement between primary and secondary care givers on what information within the referral letter is essential information.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

4.2.1 Delayed and late referrals

- **Al-Shahri, Sroor, and Alsirafy (2010) Referrals and Admissions to a Palliative Care Program in Saudi Arabia. Table 17, p. 117]**

  Al-Shahri *et al.* explore the impact of introducing referrals criteria for admission to a palliative care unit. This paper is concerned with palliative care. The study showed that referral criteria can improve the process. The paper concludes that more education and organisational actives are needed to address delays within referral requests.

- **Boehm, Winkelmayer, Arbeiter, Mueller and Aufricht (2010) Late referral to paediatric renal failure service impairs access to pre-emptive kidney transplantation in children. [Table 17, p. 118]**

  Boehm *et al.* explore the impact of delayed and late referrals through a retrospective analysis of to first paediatric nephrologists' visit for all patients in a tertiary paediatric centre. This study finds that the late referral of children with chronic kidney disease to the paediatric nephrology centre reduces the likelihood of the child receiving a pre-emptive kidney transplant.

- **Drieskens, Bilsen, Van den Block, Deschepper, Bauwens and Distelmans (2008) Characteristics of Referral to a Multidisciplinary Palliative Home Care Team. [Table 18, p. 118]**

  Drieskens *et al.* identify that no scientific information has been available about which patients are referred to multidisciplinary palliative home care teams (MHCT) and by which caregivers, nor about timing of referral and factors associated with it. The study finds that timely referral to a MHCT seems to be difficult and not equal for all patients. The authors conclude that referral timing varies largely by age groups and diseases.

4.2.2 Referral failures

- **Vardy, Freud, Sherf, Spilberg, Goldfarb, Cohen, Mor-Yosef and Shvartzman (2008) A Co-payment for Consultant Services: Primary Care Physicians' Referral Actualization. [Table 18, p. 120]**

  Vardy *et al.* explore the effect of a new copayment for specialists' consultations on actualisation of referrals. The study examined actualisation rates, reasons for non-actualisation and patient socio-demographic characteristics. The study found the main reasons for non-actualisation were an inability to research the clinic, and a problem which had resolved.

- **Albertson, Lin, Kutner, Schilling, Anderson and Anderson (2000) Referrals to hospital by general practitioners: a study of compliance and communication. [Table 18, p. 118]**

  Albertson *et al.* explore the frequency and determinants of provider non-recognition of patients' desires for specialist referral. The results of the study show that almost one-third (27%) of providers did not discuss referral options with patients who indicated a definite desire for referral.

- **McGlade, Bradley, Murphy and Lundy (1988) Referrals to hospital by general practitioners: a study of compliance and communication. [Table 18, p. 120]**

  McGlade *et al.* explore referrals from general practice to hospital clinics and the factors associated with non-attendance. This paper identifies that the referral process is complex and often fails.

4.2.3 Communication content

- **Garasen and Johnsen (2007) The quality of communication about older patients between hospital physicians and general practitioners: a panel study assessment. [Table 18, p. 119]**

  Garasen and Johnsen discuss information missing from referral letters. In this study, conducted at a general hospital, both referral and discharge letters were examined and found to be missing vital medical information. Significantly, this lack of information in the referral letters was evident to such an extent that it might represent a health hazard for older patients. The study

identified a discrepancy between what primary and secondary health care practitioners view as essential and vital information to be included in the referral and discharge letters.

4.3. Current Practices, Interventions, Critical Success Factors and Effectiveness in Referral

This section presents and discusses the major themes, issues and results identified within the literature pertaining to current practices, interventions, critical success factors and effectiveness. The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

The **major evidence based themes** identified in the literature relating to Current Practices, Interventions, Critical Success Factors and Effectiveness in referral can be summarised as follows:

- **Quality of referrals:** the literature points to the examination of the quality of information contained in referral communication, largely referral letters. The literature also points to a potential information gap between specialists and GPs within the provision of prior investigations pre referral and the patients' current medication information. Additionally, the literature points to the fact that information exchanged between specialists and GPs is frequently not acted upon by either party.
- **Content of referrals:** the literature points to the potential benefits for the referral quality and communication processes through the development of a web-based practice improvement tool. Additionally, the literature suggests the development of a minimum basis for referral communication developed by medical peers. This referral format has been identified as potentially improving the continuity of information flow between primary and secondary care.
- **GP to Specialist communication practices:** the literature points to the lack of method in communication between GPs and specialists. This may have a detrimental effect on communication between primary and secondary care. Additionally, the literature highlights the need for understanding the impact of referral behaviour and patterns involving GPs to specialist on waiting times. Reasons for referral trends were attributed to specialist reputation and perceived shorter waiting times.
- **Barriers and limitations:** the literature explores the role of parents of information intermediaries for their children. the literature points to the blurring of professional boundaries as nurse practitioners commence referring patients to specialist care. The literature identifies a number of concerns or barriers that may inhibit the efficiency of the nurse practitioner referral process. Additionally, the literature suggests the need for a sole point of communication to facilitate the referral and transfer of older patients between community and hospital care. The literature also points to the concerns of communication gaps that may exist between the referring GP and the emergency department of a hospital. The breakdown of the communication process is highlighted as a barrier to effective co-ordinated care.
- **Effect on waiting times:** the literature points to the impact the quality and content of a referral letter has upon waiting times and the prioritisation of service provision between different grades of specialist.
- **Referral follow-up:** the literature points to the fact that referral letters from GPs to the accident and emergency department are frequently missing from the medical record.
- **Financial impacts:** the literature points to the financial impact a referred or transferred (between facilities) patient has within a hospital setting.
- **eReferrals:** the literature provides evidence that eReferrals can increase patient, GP and specialist satisfaction. Additionally, the literature points to the fact that for

successful uptake of eReferrals to occur all stakeholders within the eReferral process need to have their priorities well managed.

- **Resource allocation:** the literature provides evidence on the effectiveness of in-house referral within a general practice before referral to a specialist. The use of in-house referrals has some positive outcomes for both health practitioners and patients. The literature also points to the variation in referral allocation between locum and regular GPs. Additionally the literature suggests there are benefits from improving referral access for disadvantaged rural women and children. The literature also provides evidence of the need for education provision to improve the understanding of referral activity and how health professionals interact with each other in the referral process.
- **Telephone triage:** the literature provides evidence on the effect a reorganisation of an out-of-hours general practice. The biggest changes were in a mandatory telephone triage staffed by GPs and the replacement of small rota systems with county-based health centres. The evidence provided within the literature found the mean number of contacts with casualty wards rose significantly during the whole.
- **Referral tracking:** the literature suggests the introduction of referral management centres to assist with the risk management, appropriateness and analysis of referral appropriateness and volume. The literature additionally suggests the change of legal responsibility when the referrals are accepted by the referral management centres.
- **Referral appropriateness:** the literature provides evidence about the processes of care at the interface between primary and secondary care. The literature provides an analysis of the patterns and processes of referral to outpatients departments complemented by the views of patients, their GPs and specialists. Additionally the literature points to the use of a health practitioners experience and knowledge within the palliative care environment.
- **Structured communication:** the literature provides evidence on the impact of a structured referral form for GP to emergency department (ED) communication. This evidence demonstrates that improving communication between GPs and EDs is difficult and may require a systematic change within both general practice and the hospital.
- **Rationing referrals:** the literature discusses the concept of referral control and investigates the appropriateness of referrals between GPs and hospital doctors.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

4.3.1 Quality of referrals

- **Peng Ong, Lim, Barnsley and Read (2006) General Practitioners' referral letters - do they meet the expectations of gastroenterologists and rheumatologists? [Table 23, p. 129]***

  Peng Ong *et al.* identify that the reason for referral; legibility; current medications; pre-referral investigations; and results are all important aspects in the referral letter. In this study an audit of the referral letters revealed that reason for referral, legibility and past medical history all met specialist expectations. In contrast, the results indicated that current medication and any pre-referral investigations fell below expectations, suggesting a higher chance of adverse medication events and the repeat of procedures that may delay treatment.

- **Grol, Rooijackers-Lemmers, van Kaathoven, Wollersheim and Mokkink (2003), Communication at the interface: do better referral letters produce better consultant replies? [Table 23, p. 127]**

  Grol *et al.* undertook a study examining the impact of the quality of referral letters on the return communication. The study findings confirm other studies suggestions that the quality of both referral and reply letters can be improved. The authors identify that there is an apparent lack of

real information exchange within this process. It also identified that the different professionals fail to act on other parties' information/communication. Opportunities to enforce optimal communication should be exploited.

4.3.2 Content of referrals

- **Hess, Lynn, Holmboe and Lipner (2009) Toward Better Care Coordination Through Improved Communication with Referring Physicians. [Table 23, p. 128]**

  Hess *et al.* evaluated a new tool called the *Communication with Referring Physicians Practice Improvement Module* (CRP-PIM). This tool aims encourage improved communication among physician consultants and referring physicians. The authors identify this as a useful tool that allows for the application of quality measures to their referral practice. They postulate that the tool may encourage consultants to improve communication with referring physicians.

- **Berta, Barnsley, Bloom, Cockerill, Davis and Jaakkimainen (2008) Enhancing continuity of information: essential components of a referral document. [Table 24, p. 135]**

  Berta *et al.* undertook a literature review with the aim to develop a list of items or data elements related to patient information transfer in chronic care. The review engaged an 8-member expert panel in a 2-round modified Delphi process to assess the importance of the 74 data elements identified and to identify any additional important elements. The authors of the study assembled the minimum elements into a suggested format for a referral document. The document format can be modified by practitioners. The review concludes that this format provides information for improved communication to assist with the continuity of information flow between primary and secondary care.

4.3.3 GP to Specialist communication practices

- **Bodek, Ghori, Edelstein, Reed and MacFadyen (2006) Contemporary referral of patients from community care to cardiology lack diagnostic and clinical detail. [Table 23, p. 126]**

  Bodek *et al.* explore the fact that given most referrals are seen as appropriate, information exchange between secondary and primary care is crucial. However, the standard of even basic clinical assessment communicated between primary care and secondary care was evaluated to be severely limited. The paper concludes that the reason(s) medical assessment is lacking from referrals are unclear but must be explored.

- **Taggarshe, Haldipur and Singh (2006) Generic outpatient referrals: why don't GPs make them? [Table 23, p. 134]**

  Taggarshe *et al.* explore the concept that previous referral behaviour to specific specialist may cause strain on waiting lists. The study aims to understand the effect of referral to a speciality, rather than to a specific specialist. The study found that reasons for specific referrals were attributed to specialist reputation and perceived short waiting list. Recommendations from the study include the creation of teams to allow for inter-specialist communication and sharing of ideas to assist with rapport building and increased medical management of patients.

4.3.4 Barriers and limitations

- **Stille, Primack, McLaughlin and Wasserman (2007) Parents as Information Intermediaries Between Primary Care and Specialty Physicians. [Table 22, p. 124]**

  Stille *et al.* describe their study which aimed to assess the views of parents and children referred to speciality care and the views of children's primary care and speciality physicians about parents' roles as information intermediaries. The results from the study demonstrated that more parents (44%) than primary care physicians (30%) felt comfortable with parents acting as primary communicators between children and their physicians.

- **Price and Williams (2003) Primary care nurse practitioners and the interface with secondary care: a qualitative study of referral practice. [Table 23, p. 131]**

  Price *et al.* discuss the views of primary and secondary care practitioners about who should take responsibility for the referral of patients in the light of concerns raised about professional competence and accountability. Whilst nurse practitioners felt confident within their roles, these views were not always shared outside their professional circle. The role of a gatekeeper to be undertaken by a nurse practitioner was also an area where differences of opinion lay with different professional groups.

- **Payne, Kerr, Hawker, Hardey and Powell (2002) The communication of information about older people between health and social care practitioners. [Table 24, p. 137]**

  Payne *et al* undertook a review of studies that describe strategies and communication of information between referral and transfers between hospital and community for older people. The review identified that the most effective strategy for transferring information is the appointment of a 'key worker', who can provide a point of contact for workers from hospital and community. The review concludes that problems have arisen because both settings are under pressure and pursuing different goals. Neither setting is fully aware of the needs, limitations and pressures of the other.

- **Ramrakha and Giles (2001) Take a letter ... an audit of GP referrals in south west Sydney. [Table 23, p. 132]***

  Ramrakha and Giles discuss the concerns about gaps in communication between GPs and EDs, particularly in relation to: the use of telephones; variable quality of letters; and the low rate of ambulance usage when dealing with high risk admission events. The study also looked at the use of telephone calls made by the referring doctors and ambulance usage for patients referred with a provisional diagnosis of acute coronary or cerebral event.

4.3.5 Effect on waiting times

- **Pothier (2005) Referral letters: are we prioritizing consistently? [Table 23, p. 130]**

  Pothier notes that previous studies identify that consultants are unsatisfied with the quality of information within a GP referral letter when used to accurately prioritise when a patient is to be seen. This study investigated whether different grades of specialist, specialist within each grade and individual specialist graded identical referrals differently on different days.

4.3.6 Referral follow-up

- **Le Doare, Benerjee, Oldfield (2009) Written Communication Between General Practitioners and Hospitals: An Analysis [Table 23, p. 129]**

  Le Doare *et al.* undertook a retrospective study of patient referral letters and paired discharge summaries for all patients admitted to hospital following referral by their GP. Results suggested that 58% of patients' referral letters to the accident and emergency department were missing from the medical record. Of the 773 referrals to ED, only 37% had a paired GP referral letter and discharge summary. Of the discharge summaries, two-thirds were handwritten, and 96% of those were legible. Half of the discharge diagnoses matched that given by the referring GP.

4.3.7 Financial impact

- **Pietz, Byrne, Daw and Petersen (2007) The Effect of Referral and Transfer Patients on Hospital Funding in a Capitated Health Care Delivery System. [Table 23, p. 130]**

  Pietz *et al* undertook this study with two objectives: (1) To investigate whether inpatients referred or transferred between facilities result in increased financial loss compared with those admitted directly, in a health care delivery system funded by capitation methods. (2) To determine whether the higher cost of those patients transferred or referred is fairly

compensated by a diagnosis-based risk adjustment system, and whether tertiary care facilities bear an unfair financial burden for such patients in a capitated financing environment.

4.3.8 eReferrals

- **Kim, Chen, Keith, Yee Jr, and Kushel (2009) Not Perfect, but Better: Primary Care Providers' Experiences with Electronic Referrals in a Safety Net Health System. [Table 23, p. 128]**

  Kim *et al.* explore the concept that if eReferrals can improve waiting times for appointments it may then lead onto better quality and access to care. The paper concludes the impact that electronic referrals have on workflow processes need to be considered in order to evaluation their use as a tool.

- **Zanaboni, Scalvini, Bernocchi, Borghi, Tridico, and Masella (2009) Teleconsultation service to improve healthcare in rural areas: acceptance, organizational impact and appropriateness. [Table 22, p. 125]**

  Zanaboni *et al.* follow a pilot study of teleconsultations, initiated through GP referrals to decrease hospital admissions leading to improved use of primary care and integration of secondary care. This pilot concludes that for a future routine use of this service, trust in specialists, duration and workload of teleconsultations and reimbursement should be taken into account. Managerial and policy implications emerged mainly related to the support to GPs in the provision of high quality primary care and decision-making processes in promoting similar service. [Note: this paper was found to be relates to a number of themes and so is repeated within each relevant theme area]

- **Schattner, Mathews and Pinskier (2008) Promoting e-communication. Lessons from a feasibility study. [Table 23, p. 133]***

  Schattner *et al.* discuss the Southern Managed Health Network Project, funded by the Australian Government. The aim of the project was to develop an agreed process for e-communication between GPs and other health care providers in the southern region of Melbourne. The study participants agreed that e-communication required leadership to ensure it was utilised and that each stakeholders group's priorities were managed.

- **Nicholson, Jackson, Wright, Mainwaring, Holliday and Lankowski (2006) Online referral and OPD booking from the GP desktop. [Table 22, p. 124]***

  Nicholson *et al.* explore the use of eReferral communication which illustrated good patient, GP and hospital satisfaction levels. This paper describes the investigation of the Brisbane Inner South E-referral Project (BISEP). This project developed an application which allowed general practitioners, from their desktop, to successfully search for and book an available hospital outpatient appointment for patients with suspected cancer, send the referral electronically, and inform the patient of both the appointment and referral during the consultation. The study attributed the satisfaction levels to both stakeholder involvement within the design, development and deployment stages and to the actual process having low levels of impact during patient consultation.

4.3.9 Resource allocation

- **Tjerbo (2010) Does competition among general practitioners increase or decrease the consumption of specialist health care? [Table 24, p.137]**

  Tjerbo adds to the literature in two ways; first by testing out different operationalisation of capacity and competition among GPs, and then by testing the effect of capacity and competition on use of specialist health care services. This research provides inconclusive evidence but discusses the impact of number of GPs on use of specialist services.

- **Gjessing and Faresjo (2009) Exploring factors that affect hospital referral in rural settings: a case study from Norway. [Table 23, p. 127]**

  Gjessing and Faresjo describe a study where the objective was to analyse whether locum doctors (LDs) have a different pattern of referral to hospital from regular GPs (RGPs). The results of this study demonstrated the number and proportion of the total number of referrals, adjusted for population size, did not differ between the two rural communities. Additionally, the

analysis also revealed that possible under- and/or over-diagnosing of certain diseases occurred.

- **Edwards and Roelofs (2005) Participatory Approaches in the Co-Design of a Comprehensive Referral System. [Table 24, p. 136]**

  Edwards and Roelofs describe the experiences of the University of Ottawa, School of Nursing and its Chinese partner, the Yunnan Provincial Public Health Bureau, in developing and implementing a comprehensive referral system for impoverished rural women and children. Through engaging government officials, health workers, local leaders and village women in dialogue and reflection, the Canadian and Chinese partners developed a common understanding about underlying determinants affecting maternal and child health services; explored appropriate intervention options; and developed an innovative comprehensive referral system.

- **Rowlands, Willis and Singleton (2001) Referrals and relationships: in-practice referrals meetings in a general practice. [Table 22, p. 124]**

  Rowlands *et al.* undertook an exploration, to complement a randomised controlled trial, which was found to have perceived little impact on the practices referral behaviours (as measured by the RCT) yet the education improved their understanding of referral activity and how individuals interacted with each other. An unexpected finding from this qualitative investigation was the benefits received from participant of small group learning and the value of pooling information and highlighting area's where knowledge could be improved.

- **Kinnersley, Rapport, Owen, and Stott (1999) In-house referral: a primary care alternative to immediate secondary care referral? [Table 22, p. 123]**

  Kinnersley *et al.* explored the possibility of GPs referring to other GPs for a second opinion before referring to a specialist. The authors identified that a previous qualitative study had reported positive outcomes for both practitioners and patients. Results of the study showed that using a 12 month patient satisfaction survey the patients had greater rates of satisfaction. The limitation factors of this study were small sample size and clinical scope. This study may have affected some benchmarking measures within the practices concerned with referral behaviours.

4.3.10 Telephone triage

- **Vedsted and Christensen (2001) The effect of an out-of-hours reform on attendance at casualty wards. The Danish example. [Table 22, p. 125]**

  Vedsted and Christensend aimed to analyse the effect of a reorganisation of the out-of-hours general practice service in Denmark. The biggest change was introducing a mandatory telephone triage staffed by GPs and the replacement of small rota systems with county-based health centres. The study concluded the mean number of contacts with casualty wards rose significantly during the research period.

4.3.11 Referral tracking

- **Norwell (2008) HOW TO... deal with referral management centres. [Table 24, p. 137]**

  Norwell *et al.* discuss referral management systems and centres in the National Health Service in England. The paper illustrates how some primary care centres are using referral management centres to monitor, direct and control referrals from primary to secondary care. Additionally the review discusses the legal aspects of who is responsible for tracking the referral, and the role of confidentiality when referrals are sent through the referral management centres. This paper discusses the ability to track referrals and to have a central record of diagnoses and the patient journey.

4.3.12 Referral appropriateness

- **Walshe, Chew-Graham, Todd and Caress (2008) What influences referrals within a community palliative care services? A qualitative case study. [Table 23, p. 134]**

  Walshe *et al.* describe their study investigating referral decisions made within community palliative care services. The study undertook a qualitative case study of three primary care trusts (including general and specialist palliative care providers, managers, patients etc.) in the United Kingdom. The results from this study demonstrated that healthcare professionals make independent judgements about the appropriateness of referrals based on their expertise, workload and relationship with patients.

- **Bowling & Redfern (2000) The process of outpatient referral and care: the experiences and views of patients, their general practitioners, and specialists. [Table 22, p. 122]**

  Bowling and Redfern add to the literature through their analysis of the patterns and process of care for the referral of outpatients, together with the views of patients, their GPs, and specialists. The study results found that almost all of the outpatients thought that their consultation with the specialist was 'necessary' and 'worthwhile'. Additionally, most of the GPs felt that they could not have given the study patients the care, treatment, and investigations they received in hospital, and most of the sampled patients' attendances were rated by the specialists as 'appropriate'.

4.3.13 Structured communication

- **Harris, Giles and O'Toole (2002) Communication across the divide: a trial of structured communication between general practitioners and emergency departments. [Table 21, p. 122]***

  Harris *et al.* aimed to evaluate the impact of structured form letters for general practitioner to emergency department (ED) communication. The study population was one hundred and fifty-five GPs with practices in the Liverpool local government area in metropolitan Sydney and patients referred by them to ED at Liverpool over five months from June to October 1998. The study found that most letters from GPs to the ED contained information on reasons for referral, medical history and examination findings. This study demonstrates that improvements to communication between GPs and EDs are difficult and may require a systemic change within general practice and the hospital. Electronic systems may allow the sort of reciprocal communication required to establish and sustain improvement.

4.3.14 Rationing referrals

- **Lancelot (2008) I'm not navigating the cross-referral maze. [Table 24, p. 136]**

  Lancelot discusses referral control and the appropriateness of referral between GP's and hospital doctors. Within the paper the minimising cross-referrals in hospitals is described. The paper comments there are two sides within the cross-referral process.

4.4. Evidence Gaps in Referral

This section presents and discusses the major themes, issues and results identified within the literature pertaining to evidence gaps in referral. It should be noted that this section is not attempting to provide a conceptual map of existing evidence gaps on referral rather it is presenting themes that were identified in the literature either explicitly as evidence gaps or as emerging directions for future activity and/or research. Note: in some instances Category 4 evidence may have been used to identify the evidence gaps.

The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

The major evidence based themes identified in the literature relating to evidence gaps in referral processes can be summarised as follows:

- **eReferral evaluation:** the literature suggests there is limited research into evaluation of the use of electronic tools for referrals between different healthcare organisations apart from GP to specialist.
- **Legal and ethical aspects:** the literature suggests the need for further exploration of the referral process from an Australian perspective, including the reasons for referral. The literature identified that the process is complex and there are underlying legal and ethical responsibilities that must be considered.
- **Including patients in the referral process:** the literature points to the impact the provision of copies of referral information for patients has on both patients and the health care system. The literature indicates greater information gaps in the history of patients referred to an emergency department than those not referred. Literature has identified that this is an area that needs further investigation.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

4.4.1 eReferral evaluation

- **Heimly (2009) Electronic Referrals in Healthcare: A Review. [Table 29, p. 140]**

  Heimly reviewed electronic referrals through the use of scientific papers, reports and interviews with relevant figures. The study found that the time from initiation of the first services to high volume use is related to how well the new solutions fit with the general practitioners' and specialists' work practices, and if there are obvious benefits for the communication partners. The paper identifies a gap that few evaluations or reviews of eReferrals exist.

- **Jaatinen, Aarnio, Remes, Hannukainen and Koymari-Seilonen (2002) Teleconsultation as a replacement for referral to outpatient clinic. [Table 26, p. 139]**

  Jaatinen *et al.* conducted an investigation of referrals from a primary care centre in Finland. The research explored the effect teleconsultation had on outpatient clinic referral and resource allocation. The researchers found that telereferral increased the possibility of the GP maintaining responsibility for the treatment. They concluded that the reduced number of hospital visits in the telemedicine model should produce significant cost savings but this requires further investigation.

4.4.2 Legal and ethical aspects

- **Pitterman and Koritsas, (2005) Personal Viewpoint Part II. General practitioner-specialist referral process. [Table 29, p. 141]**

  Pitterman and Koritsas present an Australian viewpoint on the GP and Specialist relationship, in particular the nature of the referral process, referrals most commonly made and the reasons behind these referrals. The authors identify that the GP to specialist referral process is multi-layered with legal and ethical responsibilities included within the process.

4.4.3 Including patients in the referral process

- **Stiell, Forster, Stiell and van Walraven (2003) Prevalence of information gaps in the emergency department and the effect on patient outcomes. [Table 28, p. 140]**

  Stiell *et al.* discuss the information gaps that may occur when previously collected information is unavailable to a physician who is currently treating a patient. In this study the prevalence of physician-reported information gaps for patients presenting to an emergency department at a teaching hospital was measured. The results of this study found the histories of patients who

were referred to ED contained more information gaps than those presenting without a referral. The authors conclude that this could be linked to the expectations present when patients are referred to the ED.

4.5 eHealth Services Research Group Commentary

This review highlights that a large number of papers have now been published on referral and referral processes, tools and techniques. It is also evident that the overall numbers of high quality evidence based interventions that display a high level of potential for transferability remain relatively low. This review has also identified that many publications that overtly matched the search terms had either very limited or no direct relevance to questions being posed by the review.

In this regard, this review (like the reviews on discharge and admission) deliberately prioritised literature focused on processes, tools and techniques as well as experiences and insights related to the transfer of patients, information about them and/or their care from individual or teams of health professionals in one setting to those in another health organisation or setting (i.e. Inter-organisational processes rather than just intra-organisational processes).

This review has identified literature examining referral from a number of perspectives both within and between the primary, community and tertiary health care sectors. Despite some research on referrals (as a form of advice or opinion-seeking) where the intention is that further care will be provided by the original care provider, by far the most dominant focus in the literature is on referral (as a process involving more specialised continuing treatment by another provider with a higher level of health expertise in a particular clinical/health speciality). The majority of this literature in turn tends to focus on referral from primary to tertiary care, with less focused on internal hospital referrals and only a small percentage on referral within primary care settings (e.g. GP to a community physiotherapist). This evident bias in the literature has tended to result in studies involving patients with high care needs (e.g. high acuity or elderly) such that the quality of referral information or delays/failures in the referral process have the potential to impact negatively on patient outcomes. The process of self-referral differs from country-to-country and has not received any significant amount of attention. In some jurisdictions this is addressed in the admission literature.

This review provides evidence to support the view that properly constructed referral content can impact positively on the quality of resultant consultations and also on patient experiences and satisfaction. There is also some suggestion that this can, in-turn, impact positively on the overall costs of the delivery of health care services because high quality referral can decreasing unnecessary repetition of procedures and tests. Aligned to this point is evidence that highlights how accurate medication reporting has the potential to decrease the risk of medication error and subsequent adverse events. Similarly, the literature provides some indication of the potential for electronic referrals to enhance the speed of the referral process. Linked to this are perspectives that eReferrals will also enhance the quality of data and the overall outcomes from referral processes. Unfortunately, to date there is limited evidence to support these perspectives. Indeed, unless health professionals and/or provider organisations have processes in-place to both send and receive high quality, accurate, up-to-date and pertinent referral information, speed of data transfer alone is unlikely to have a significant impact on safety and quality or patient outcomes. Indeed, given the shortage of specialists in some disciplines eReferrals may also have little impact on improved access to appointments.

The literature also highlights that there is an increasing level of blurring of professional boundaries. Patients may be referred by, and to, an increasingly wide range of health care professional groups. This stated, it is also evident that some health professional groups are reluctant to relinquish care of patients, making the co-ordination of care both a priority and more challenging. For chronic conditions, particularly where patients have a range of co-morbidities requiring specialist and general care, referral can be highly complex and challenging in terms of managing quality and safety over-time. Typically the GP is seen as being responsible for the overall care of the patient but this is becoming more difficult as the range of providers increases.

More specifically, this review has identified evidence in a number of key areas confirming that referral is a risk scenario for patient safety. Delays in making a referral can lead to care continuing to be provided at a lower level of specialisation, and this may result in poorer outcomes for the patient. There may also be a reluctance on the part of the patient to act on the referral provide for them, with similar unsatisfactory outcomes. In the UK, there has been a recent focus on referral management as part of the NHS reforms. These reforms have included a referral model where patients may be reviewed by members of a multidisciplinary team, rather than seeing a medical consultant as a first option. Advantages and disadvantages of this approach are reported and the approach may be of relevance in settings where a similar model for referrals is being contemplated or is already in-place.

Much of the published evidence focuses on referral as either a document or a process of transfer of the patient (or information about them). A large number of these studies specifically focus on the format, content and quality of referral documents, factors impacting their use, the impact of referral itself (eReferral, timing, financial, patient outcomes, and waiting lists). While structured referral formats have been reported as having some positive effects in hospital settings, structured referral formats for GP to Emergency departments appear to require more systematic changes within GP and in hospital settings to ensure improved communication.

In terms of evidence gaps it is evident that there is limited research into education and training on referral communication, on processes for engaging in organisational change management to support improved referral and a general lack of attention to the role of patients (who clearly do need to understand the reason for, and importance of any referral).

On the basis of this review it is evident that the key elements in ensuring safe and high quality referral include:

- An accurate, complete and legible referral document communicated in a timely manner
- An active process of the transfer of the patient, and/or their information along with responsibility for (all or part of their care) to the healthcare provider receiving the referral and including a confirmation of their willingness to accept this role.
- Ensuring that the patient and their carer understand and are involved in any on-going treatment/care that is being planned during the process of referral and subsequently.

These processes can only be optimised if organisations involved in referral have transparent and explicit guidelines supported by education and training for health professionals (including communication with patients/carers) on the processes, tools and techniques for referral.

Importantly it is necessary to re-iterate that the specific requirements of this type of review impose an artificial separation between the processes of discharge, referral and admission that is not replicated in practice. Discharge of a patient by one care provider regularly results in admission by another, and these complementary activities are frequently accompanied by some form of referral. Ensuring safety and quality of patient care across multiple settings means that these processes should, wherever possible, not be treated in isolation

Overall this review highlights a growing awareness of the importance of referral for maintaining safe and high quality health care.

The next section (4.6 below) presents five tables for each major section of this literature review (a total of 15 tables). These tables categorise all evidence based materials discussed above and as well as other materials (categories 4 and 5 i.e. reviews, opinions and reports) identified as of relevance. As discussed the introduction the aim of the categorisation (1-5) is to enable readers to quickly and easily differentiate between different types of intervention based studies; and differentiate intervention based studies from pre-interventional studies, reviews, opinions and reports.

4.6. Summary Tables on Referral

4.6.1 Referral - High Risk Scenarios and Patient Safety Tables

Table 16: High Risk Scenarios and Patient Safety - Category 1 Evidence				
Author(s)	**Study Type**	**Intervention, Approach**	**Outcomes, Recommendations**	**Comments**
				No Category 1 evidence was found relating to High Risk Scenarios and Patient Safety

Table 17: High Risk Scenarios and Patient Safety - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Al-Shahri, Sroor, and Alsirafy, 2010	Quantitative Analysis of patient survival. Pre and post intervention study.	This study explored the impact of a change in referral policy on the pattern of referrals to a palliative care program (PCP). Referral criteria were developed to rationalise transfer-of-care requests and referrals to a hospital-based PCP in Saudi Arabia. Referrals over 19 months before the introduction of referral criteria were compared with referrals over a similar period starting 6 months after the criteria were implemented. The post criteria stage showed an increase in admissions to Palliative Care Unit through the ED by the palliative care team, rather than direct transfers to the unit The findings suggest that the referral policy led to a more rational pattern of transfer-of-care referrals to the PCP. However, more educational efforts and organisational actions are needed to prevent delayed referrals of cancer patients to palliative care teams.	Theme: Delayed and late referrals Country: Saudi Arabia This paper evaluates the impact of referral criteria for admission to a palliative care unit; forma criteria were shown to improve the appropriateness of referrals.

Table 17: High Risk Scenarios and Patient Safety - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Boehm, Winkelmayer, Arbeiter, Mueller, Aufricht, 2010	Intervention Referral Delayed Referral	This paper evaluates the association between timing of referral and the likelihood of pre-emptive kidney transplantation in children. The study used a retrospective analysis of to first paediatric nephrologists' visit for all patients in a tertiary paediatric centre. Results from the study demonstrate that late referral of children with chronic kidney disease to the paediatric nephrology centre reduces the likelihood of the child receiving a pre-emptive kidney transplant.	Theme: Delayed and late referrals Country: Austria Small study, but statistically significant.

Table 18: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Albertson, Lin, Kutner, Schilling, Anderson, Anderson, 2000	Quantitative Prospective study Referral failure	This paper describes a study to determine the frequency and determinants of provider non-recognition of patients' desires for specialist referral. A prospective study of patients from an internal medicine clinic used questionnaires before and after the clinic visit. Results show that almost one-third (27%) of providers did not discuss referral options with patients who indicated a definite desire for referral. 56% of those who expressed a possible desire to be referred were not referred.	Theme: Referral failures Country: Untied States
Drieskens, Bilsen, Van den Block, Deschepper, Bauwens, Distelmans and Deliens, 2008	Quantitative Analysis using descriptive statistics, cox regressions, through the Kaplan-Meier method in SPSS. Prospective Cohort Study.	This paper evaluates referrals to multidisciplinary palliative home care teams (MHCT), including the timing of referral and factors associated with it. The authors undertook a nine-month prospective cohort study of patients who were currently in a	Theme: Delayed and late referrals Country: Belgium This paper highlights common issues with referral for multidisciplinary palliative home

Table 18: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		palliative care trajectory. In total, 325 patients (54% male, mean age 71 years, 83% cancer patients) were referred: 25% by their GP, 24% by hospital social workers, and 22% by the patient's family. Median time from referral to death was 26 days (IQR 8-78). Patients 75 years or older were more likely to have been referred later, compared to younger patients. This authors observe that timely referral to a MHCT seems to be difficult and not equitable for all patients. Referral timing varies by age group and by disease.	care
Garasen and Johnsen, 2007	Quantitative Analysis (SPSS) Cohort Study.	The main objectives of this study were to assess the quality of the written communication between physicians and to estimate the number of patients who could have been treated in primary care, rather than in a general hospital. This study looked at referral and discharge letters for 100 patients over 75 years of age admitted to orthopaedic, pulmonary and cardiology departments at a city general hospital in Trondheim, Norway. Information in the referral letters on medical situation, medical history, symptoms, signs and medications was assessed to be of high quality in 84%, 39%, 56%, 56% and 39% of letters respectively. Within discharge letters corresponding information was assessed to be of high quality for actual medical situation 96%, medical history 92%, symptoms 60%, signs 55% and medications 82%. Only half of the discharge letters had satisfactory information on Activities of Daily Living. Both referral and discharge letters were missing vital	Theme: Communication content Country: Norway This Norwegian study highlights a difference of opinion about essential components of referral letters between primary and secondary care. The quality and appropriateness of referral letters, are considered.

Table 18: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		information, referral letters to such an extent that it could represent a health hazard for older patients. The paper highlights a discrepancy between what primary and secondary health care view as essential and vital information for referral and discharge letters.	
McGlade, Bradley, Murphy and Lundy, 1988	Quantitative Analysis. Cohort Study. Retrospective Analysis.	This paper assesses factors associated with non-attendance following referrals from the GP to a hospital clinic. The aim of the study was to determine the extent of non-attendance at first hospital appointments for 269 hospital referrals from one practice over 14 weeks. Non-attendance was more likely for patients who were referred to outpatient departments, than to casualty or for admission. 15% (41/269) of all patients and 20% (33/167) of those with outpatient referrals failed to keep their initial appointments. Prolonged waiting times from referral to appointment were significantly related to non-attendance. Twenty weeks after the last referral had been made no communication had been received by the practice for 24% (61/252) of all referral letters received by the hospital. The authors suggest that shorter delays between referral and appointment, and improved communication from hospitals to general practitioners would help general practitioners to make appropriate referrals, and improve compliance.	Theme: Referral failures Country: Ireland This paper identifies that the referral process is complex and often fails. This is an older paper ('88) but worth considering.
Vardy, Freud, Sherf, Spilberg, Goldfarb, Cohen, Mor-Yosef, Shvartzman, 2008	Quantitative Referral Referral Failure	This paper describes a prospective evaluation of the effect of a new copayment for specialists' consultations on actualisation of referrals. The study examined actualisation rates, reasons for non-	Theme: Referral failures Country: Israel

Table 18: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		actualisation and patient socio-demographic characteristics. The study found that actualisation was occurred for 85.1% of the community clinic consultations, and 91.7% of those for hospital outpatient clinics. The main reasons for non-actualisation were an inability to research the clinic, and a problem which had resolved. The co-payment also had an effect on the patient's decision.	

Table 19: High Risk Scenarios and Patient Safety - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
		No specific Category 4 evidence was found relating to High Risk Scenarios and Patient Safety in Referral.

Table 20: High Risk Scenarios and Patient Safety - Category 5 Evidence		
Author(s)	**Type: Report**	**Commentary**
Belfrage, Chiminello, Cooper and Douglas, 2008	Report Theme: Aged care communication and patient safety	This report discusses the ACSQHC public report on the Aged Care Home Transfer-to-Hospital Envelope Trial. The project within the paper is more commonly known as the "big yellow envelope". The report discusses the trial of the envelope as an aid in transfer of patients from aged care to hospital, which ran for 18 weeks in 2008. The report found that the envelope was helpful, easy to use; its use increased patient safety, and showed potential for broader use. The report also noted that the envelope was an effective toll, and that all stakeholders in the residential aged care facility and the emergency department reported a better clinical transfer when it was used. This report recommends that the envelope should be used nationally in order to promote greater patient safety and communication of information.

4.6.2 Referral - Current Practices, Interventions, Critical Success Factors and Effectiveness Tables

Table 21: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1 Evidence

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Harris, Giles and O'Toole, 2002	Randomised controlled trial Study population of 155 GP's	GPs in the intervention group were encouraged to follow a structured pro-forma for written communication with the ED; GPs in the control group used their usual referral procedures. The local ED was encouraged to fax a brief report back to GPs using the developed form.	The results of this study showed that most letters from GPs to the ED included reasons for referral, medical history and examination findings. Reason for referral was present in 95% of the intervention group GPs' letters compared with 99% of those of the control group. Investigations were included in 27%, and present medications in 37%. Letters from GPs in the intervention group were more likely to contain a psychosocial history (13%) than those in the control group (1%). Most GPs reported receiving a letter from the ED although this was rarely by fax (most were brought to them by the patient); about one in five GPs each month received phone calls. Most GPs found both of these to be useful. This study concluded that improvements to communication between GPs and EDs are difficult and may require a systemic change within general practice and the hospital.	Theme: Structured communication Country: Australia Intervention demonstrates minimal change in the reasons for referral information, but significant improvement in medical history.

Table 22: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence

Author(s)	Study Type	Outcomes	Comments
Bowling and Redfern, 2000	Questionnaire survey	This paper notes the paucity of descriptive data about the primary-secondary care interface in the NHS. The study aims to analyse	Theme: Referral appropriateness

Table 22: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		patterns and processes of care for the referral of outpatients, and explore the views of patients, GPs, and specialists. The study used a questionnaire survey of outpatients, their hospital specialists, and GPs in randomly sampled district health authorities in the North Thames Region, and measured items and scales for satisfaction and processes. Almost all of the outpatients thought that their consultation with the specialist was 'necessary' and 'worthwhile'. Additionally, most of the GPs felt that they could not have given the study patients the care, treatment, and investigations they received in hospital, and most of the sampled patients' attendances were rated by the specialists as 'appropriate'. The study also found that, for just over one-fifth of new patients, the specialists reported that the GP could have done more tests and examinations prior to referring the study patient.	Country: Britian This paper includes patient opinion in addition to that of health care professionals.
Kinnersley, Rapport, Owen, and Stott, 1999	Qualitative Analysis. Randomised Sample with control and intervention groups.	This paper describes a study on the practicability of GPs referring to other GPs before referring to a specialist. Practices were randomised to an intervention or a control group. In the intervention practices, patients with certain conditions destined for referral to secondary care were referred in-house. If the second clinician agreed that referral was appropriate the patient was referred on to secondary care. In the control practices patients were referred in the usual fashion. Patient satisfaction and health status was measured at the time of referral, at 6 months and at one year. Eight intervention and seven control practices took part. For the 177 patients referred in-house, 109 (61%) were judged to need referral to secondary care. For patient satisfaction, the only difference between the groups was that patients who had been referred in-house reported themselves as being more satisfied at 12 months than those referred directly to hospital. Physical function from the SF-36 subscale showed that those from the intervention group who were referred considered themselves less physical able; the authors gave no further explanation.	Theme: Resource allocation Country: Britian This paper evaluates GP to GP referral as a precursor to specialist referral. The small sample size and clinical scope limit its generalisability. Conduct of the study may also have affected referral behaviours within the practices studied.

Table 22: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		Overall, the study showed that in-house referral was of benefit to patients.	
Nicholson, Jackson, Wright, Mainwaring, Holliday and Lankowski, 2006	Quantitative Survey. Cohort Study, pre and post intervention.	This paper describes an evaluation of the Brisbane Inner South E-referral Project (BISEP). The project developed an application which allowed general practitioners to search for and book a hospital outpatient appointment for patients with suspected cancer, send the referral electronically, and inform the patient of the appointment and the referral during the consultation. Hospital outpatient department processes were changed to support the GP functionality. A group of 19 GPs participated in an 11-week pilot implementation of the application, and were enthusiastic about continuing and expanding the approach. Patient satisfaction measures post intervention indicated they perceived no perception of major disadvantage with this form of outpatient referral.	Theme: eReferrals Country: Australia This study focused on eReferral communication and illustrated good levels of patient, GP and hospital satisfaction. This was attributed to both stakeholder involvement within the design, development and deployment stages and to the actual process having low levels of impact during patient consultation.
Rowlands, Willis and Singleton, 2001	Qualitative Analysis Complementary sample to Randomised Controlled Trial (RCT) Use of dimensional analysis to introduce a preliminary theory describing the effect of the intervention.	The authors note that educational interventions have been shown to alter doctors' prescribing behaviour. This, together with the focus within the NHS on the cost of referral activity, made the prospect of improving or reducing, referral activity through educational interventions very attractive. Practice characteristics and key issues were identified through preliminary semi-structured interviews. A series of educational in-practice meetings were then used to discuss referrals and issues arising from referrals. The anticipated result was a change in referral patterns. Meeting transcripts were interpreted using content and group dynamic analysis. The intervention had little impact on the referral behaviours within the practice, although the education led to an improved understanding of referral activity, and how individuals interacted with each other	Theme: Resource allocation Country: Britian Within the context of this study, in-practice education on referrals did not change referral behaviours.
Stille, Primack, McLaughlin,	Qualitative Referral	This paper describes a study to assess the views of parents and children referred to speciality care and the views of children's primary	Theme: Barriers and limitations Country: United States

Table 22: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Wasserman, 2007	Communication	care and speciality physicians about parents' roles as information intermediaries. Parents, primary care paediatricians and specialists completed questionnaires by mail and telephone for the first visit and then six months later. Results from the study demonstrated that more parents (44%) than primary care physicians (30%) felt comfortable with parents acting as primary communicators between children and their physicians. A third of parents surveyed felt uncomfortable in this role.	Highlights the need for strategies to develop children's health literacy.
Vedsted and Christensen, 2001	Register-based ecologic time-trend study	This paper aimed to analyse the effect of a reorganisation of the out-of-hours general practice service in Denmark. The biggest changes were in a mandatory telephone triage staffed by GPs and the replacement of small rota systems with county-based health centres. For this study, the outcome measure was the mean number of annual contacts with casualty wards per inhabitant. The results of the study found the mean number of contacts with casualty wards rose significantly during the whole period. Given this constant increase in contact rates, a regression model showed that the increase in the attendance rate with casualty wards after the reform was statistically insignificant. The study concluded that the decrease in the total number of contacts with the out-of-hours primary health care after the reform was not met by a corresponding increase in casualty ward contacts. A clear-cut significant increase in the use of casualty wards following the out-of-hours reform could not be demonstrated.	Theme: Telephone triage Country: Denmark This study has implications for current policy developments in Australia.
Zanaboni, Scalvini, Bernocchi, Borghi, Tridico, and Masella, 2009	Quantitative Analysis (not directly mentioned). Cohort Study.	This paper discusses a study of effects of the use of teleconsultation by general practitioners in rural areas. From 2006 to 2008 general practitioners were provided with a teleconsultation service to obtain a second opinion for cardiac, dermatological and diabetic problems. Measures of access, acceptance, organisational impact, effectiveness and economics data were collected. Acceptance and organisational data were evaluated using ad hoc questionnaires. There were 957 teleconsultation contacts during the study period,	Theme: eReferrals Country: Italy A pilot implementation of teleconsultations sought to decrease hospital admissions, improve the use of primary care, and the integration of secondary care The study focuses on telecommunication rather than continuity of care, admission to EDs and hospitals

Table 22: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		resulting in health care services for 812 symptomatic patients in 30 rural communities. Through the teleconsultation service, 48 general practitioners improved the appropriateness of primary care and the integration with secondary care. Future routine use of this service must take into account trust in specialists, the duration and workload of teleconsultations, Managerial and policy implications included support for GPs in the provision of high quality primary care, and decision-making processes in the promotion of similar services.	were not assessed

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Bodek, Ghori, Edelstein, Reed and MacFadyen, 2006	Cohort Study. Time-Limited, cross-sectional survey.	This study is concerned with exploring the quality and appropriateness of GP to cardiology referrals. 218 referral letters from GPs to a cardiology department were collated and analysed over a 2 month period. 49 of these patients completed questionnaires regarding the knowledge of their referral. The paper identified that the overall information quality within the letters were poor. Majority of patients had not been treated or tested before their referral. Majority of patients did not understand why they were referral but were happy with the process. This paper explores the concept that given most referrals are seen as appropriate, information exchange between secondary and primary care is crucial. By contrast, the standard of even basic clinical assessment communicated between primary care and secondary care was severely limited. The reason(s) why medical assessment is lacking are unclear but must be explored to give more support to primary care to complete basic medical task particularly if investment	Theme: GP to Specialist communication practices Country: Britain This study is limiting as it is only focused from GPs being serviced by one cardiology department, small sample group without the acknowledgement of different demographical effects.

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		is to flow into this source.	
Gjessing and Faresjo, 2009	Quantitative Analysis Population of sample over period of one year	This paper discusses a study where the objective was to analyse whether locum doctors (LDs) have a different pattern of referral to hospital from regular GPs (RGPs). Within the study population group the major difference between the primary health centres was that one had a continuous supply of LDs while the other had a stable group of RGPs. The equal-sized communities were demographically and socio-culturally similar. The results of this study found the number and proportion of the total number of referrals, adjusted for population size, did not differ between the two rural communities. The LD-run PHC centre differed significantly from the total norm in 5 out of 19 ICD chapters, equal to 41% of the patients. This study concluded that only one significant difference in hospital referrals related to ICD-diagnoses groups between the studied rural PHC centres, but the LD-run PHC differed from the total norm. These differences could neither be explained from the district's consumption of somatic hospital care nor the demographical differences, but were related to staffing at the PHC, that is LDs or RGPs. Additionally, the analysis also revealed that possible under- and/or over-diagnosing of certain diseases occurred, both having potential medical consequences for the patient, as well as increasing healthcare expenditure.	Theme: Resource allocation Country: Norway
Grol, Rooijackers-Lemmers, van Kaathoven, Wollersheim and Mokkink, 2003	Quantitative Analysis (not directly mentioned). Cohort Study.	This study is concerned with the quality of communication. A study of the quality of 637 referral letters from general practitioners (GPs) and corresponding reply letters from medical specialists showed that both types of letters can be improved, and that specific requests by GPs were addressed explicitly by the specialists in only a limited number of cases. Better referral letters resulted only partly in better reply letters. A letter is considered to be of higher quality when a specialist commences a letter with a reference to the specific request by the GP. The findings confirm other studies suggestions that the quality of both referral and reply letters can be improved. There is an apparent lack	Theme: Quality of referrals Country: The Netherlands The focus for this paper is the comparison of GP referral letters and corresponding specialist reply letters. The study was undertaken in the Netherlands.

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		of real information exchange within this process. Identified that they fail to act on other parties' information/communication. Opportunities to enforce optimal communication should be exploited.	
Hess, Lynn, Holmboe and Lipner, 2009	Quantitative Analysis using descriptive statistics, correlation coefficients, t tests and factor analysis. Cohort Study.	The authors in this study evaluated a new tool called the *Communication with Referring Physicians Practice Improvement Module* (CRP-PIM), which aimed to assess and encourages improved communication among physician consultants and referring physicians. Eight-hundred three consultants (internists and subspecialists) completed a practice system survey and were rated by 12,212 referring physicians on 13 communication processes using a six-point scale. Consultants received an interactive performance report and selected targets for improvement. Data were analysed using descriptive statistics, correlations, t tests, and factor analysis. The study reviewed a Web based practice improvement tool called CRM-PIM. Useful tool that allows for the application of quality measures to their referral practice. Mean overall rating was high, at 5.53 (SD 0.23, range 2.46-5.95); consultants still identified areas for improvement. The generalisability coefficient for overall ratings was 0.78. Factor analysis supported two categories of ratings associated with consultants' gender, subspecialty, residency performance ratings, and specific practice system features. The CRP-PIM provides a psychometrically viable measure and encourages consultants to improve communication with referring physicians.	Theme: Content of referrals Country: United States This paper explores the concept of improved care coordination through communication with referrers
Kim, Chen, Keith, Yee Jr, and Kushel, 2009	Cohort Study. Multivariate Logistic Regression of Questionnaires answered with 5 point	This paper discusses experiences with electronic referrals. The authors surveyed primary care providers (PCPs) to assess the impact of electronic referrals on workflow and clinical care. During the study an 18-item, web-based questionnaire was administered to all 368 PCPs who had the option of referring to SFGH.	Theme: eReferrals Country: United States This study excludes a large population base due to the web-based questionnaires.

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	Likert scale.	The participants were asked to rate time spent submitting a referral, guidance of workup, wait times, and change in overall clinical care compared to prior referral methods using 5-point Likert scales. Multivariate logistic regression was used to identify variables associated with perceived improvement in overall clinical care. The PCPs felt electronic referrals improved health-care access and quality; those who reported a negative impact on workflow were less likely to agree. While electronic referrals hold promise as a tool to improve clinical care, their impact on workflow should be considered. This study also concluded that if eReferrals can improve waiting times for appointments it can then lead onto better quality and access to care.	
Le Doare, Benerjee, Oldfield, (2009)	Quantitative Discharge Communication	This paper describes a retrospective study of patient referral letters and paired discharge summaries for all patients admitted to hospital following referral by their GP. Results from the study demonstrate 58% of patients' referral letters to the accident and emergency department were missing from the medical record. Of the 773 referrals to ED, only 37% had a paired GP referral letter and discharge summary. Of the discharge summaries, two-thirds were handwritten, and 96% of those were legible. Half of the discharge diagnoses matched that given by the referring GP. Only four discharge summaries from the sample were wholly complete; the remainder had information missing from at least one category, especially information (such as dose changes) relating to medication usage	Theme: Referral follow-up Country: Britian This study is unique in that it provides a closer examination the process and flow of information between referral from a GP to hospital and then from hospital to GP. However, this study was undertaken a single sit hospital, which may limit its generalisability.
Peng Ong, Lim, Barnsley and Read, 2006	Quantitative Study, Questionnaires. Cohort Study.	This study aimed to solicit the views of gastroenterologists and rheumatologists on the importance of various aspects of general practitioners' referral letters, and to assess GPs' letters based on these views. Questionnaires were sent to 175 gastroenterologists and 88 rheumatologists in New South Wales to seek their views on the	Theme: Quality of referrals Country: Australia This is a NSW study where quality of GP referral letters (against criteria set by gastroenterologists and rheumatologists are

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		importance of nine items in GPs' letters. Four hundred referral letters from GPs were audited based on these items. The findings found that the reason for referral, legibility, current medications and pre-referral investigations and results as important aspects in the referral letter. The audit of the referral letters revealed that reason for referral, legibility and past medical history all met specialist expectations. Current medication and any pre-referral investigations fell below expectations, suggesting a higher chance of adverse medication events and the repeat of procedures that may delay treatment.	examined.
Pietz, Byrne, Daw and Petersen, 2007	Quantitative Analysis using descriptive statistics, regression models. Cohort Study.	This study had two objectives: (1) To investigate whether inpatients referred or transferred between facilities result in increased financial loss compared with those admitted directly, in a health care delivery system funded by capitation methods. (2) To determine whether the higher cost of those patients transferred or referred is fairly compensated by a diagnosis-based risk adjustment system, and whether tertiary care facilities bear an unfair financial burden for such patients in a capitated financing environment. The study included all Veterans Affairs beneficiaries. Referral was defined as an outpatient visit to 1 facility followed by an admission to another. Transfers were consecutive stays at different hospitals. A loss was defined as cost minus the share of the budget. The findings found a mean loss to a facility for patients transferred in was $1231 more than for those not transferred. The mean loss for referred patients was $3341 more than for those not referred. The study concluded that patients referred or transferred from other facilities are more costly than those who are not.	Theme: Financial impacts Country: United States This paper is concerned with the financial impact of transferring or referring patients (US study). It is interesting as patients transferred from another facility were more costly, could be an influence on a pay per service? The study concludes that a diagnosis based allocation system will not compensate for these loses.
Pothier, 2005	Prospective assessment of letter vetting and questionnaire survey.	The authors of this study note that previous studies identify consultants are unsatisfied with the quality of information within a GP referral letter in order to accurately prioritise when a referral is to be seen. This study aimed to investigate if different grades of specialist,	Theme: Effect on waiting times Country: Britain This paper investigates the impact of

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		specialist within each grade and individual specialist graded identical referral's differently on different days. Within this study fifty GP letters (not including 'fast-track' referrals) addressed to one of the ENT departments were chosen sequentially. These were anonymised, photocopied and included in the questionnaire to all participating staff. Participants were asked to vet the letters as 'urgent', 'soon' or 'routine' according to supplied waiting time criteria. The same letters were sent out again six weeks later. The study found that there was no significant difference between grades for the mean number of letters vetted into each category. Intra-grade variability was high; the number of letters vetted urgent varied from one out of 50 to 15 out of 50 for the consultants. The intra-rater reliability was high. The authors suggest further research, looking at the final outcome of patients, needs to be done to try to establish evidence-based guidelines to assist with letter vetting.	"Choose and Book" on proportion of urgent ENT referrals
Price and Williams, 2003	Cohort Study. Qualitative Analysis through focus groups and semi structured interviews.	This paper discusses the views of primary and secondary care practitioners about who should take responsibility for the referral of patients in the light of concerns raised about professional competence and accountability. Whilst nurse practitioners felt confident within their roles, these views were not always shared outside their professional circle. The role of a gatekeeper to be undertaken by a nurse practitioner was also an area where differences of opinion lay with different professional groups. The main themes identified through the focus groups were recognition of nurse practitioner referrals, service provision, the nurse practitioner role, and changing roles and boundaries. The main themes indentified through the interviews were making referral decision: the nurse practitioner role, change, roles and	Theme: Barriers and limitations Country: Britain This study is concerned with the referral of patients by nurse practitioners. There is a suggestion within the paper of issues of poor support for nurses making referrals. There are interesting discussions around accountability of nurse practitioner referrals - demonstrates the blurring of professional boundaries.

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		boundaries, teamwork, regulation of practice, making the referral: the primary/secondary care interface, communication and continuity, Co-operation, conflict and professional relationships, and the gatekeeper role.	
Ramrakha and Giles, 2001	Quantitative Analysis (not directly mentioned) Cohort Study.	This paper discusses the concerns of gaps in communication between GP and EDs particularly in the use of telephone, variable quality of letters and low rate of ambulance usage with high risk admission events. The study also looked at the prior use of telephone calls made by the referring doctors and ambulance usage for patients referred with a provisional diagnosis of acute coronary or cerebral event. An audit of the first 998 patients who presented to the Liverpool Hospital emergency department with a referral letter, after initially presenting to their GP, was carried out between June and September 1997. Subgroup analysis was done on referral letters from the patients' own GP compared with another GP. The use of the telephone before sending the patient was also noted. The admitting officer entered patient information on a computerised 'expects screen'. On arrival, the mode of transport was ascertained, in particular, whether an ambulance was used in transporting these patients. For those patients who did present with a referral letter, the standard of information lacked consistency and there was a difference between the content of letter written by their usual GP as opposed to another GP. This study found there was infrequent telephone communication when patients were referred by their GP to the emergency department. This study also shows an under-utilisation of the ambulance service by GPs in south west Sydney when referring patients with coronary ischaemia or a cerebral event to the emergency department.	Theme: Barriers and limitations Country: Australia There is an Interesting statement of "the loop of co-ordinated care can be severed by poor communication". This study is concerned with the quality of communication for GP to ED, in addition to ambulance usage. Paper presents a NSW study and also mentions there is a variation between communications from a regular GP with a one off GP.
Rowlands, Willis and Singleton,	Qualitative Analysis Complementary sample	This study has identified that previous educational interventions have been shown to alter doctors' prescribing behaviour. This, together	Theme: Resource allocation

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
2001	to Randomised Controlled Trial (RCT) Use of dimensional analysis to introduce a preliminary theory describing the effect of the intervention.	with the pressure on accounting for referral activity, makes the prospect of improving, and possibly reducing, referral activity through educational interventions very attractive. The context of the study, description of the characteristics of the practice and the issues seen as important by the doctors and practice manager were identified through preliminary semi-structured interviews. The practice then held a series of educational in-practice meetings to discuss referrals and issues arising from referrals. The audio- and videotaped transcripts were interpreted using content and group dynamic analysis. The benefit highlighted from this study was the educational sharing and standardising behaviours would have an influence prescribing methods. It was found that there was additional internal and external influencing factors that need highlighting. The intervention within the RCT was found to have perceived little impact on the practices referral behaviours (as measured by the RCT) yet the education improved their understanding of referral activity and how individuals interacted with each other. This was something the RCT was not measuring. An unexpected finding from this qualitative investigation was the benefits received from participant of small group learning and the value of pooling information and highlighting areas where knowledge could be improved.	Country: Britian The small sample size within this study is limiting. The assumptions made when creating the hypothesis are limiting and need exploring and justification. The approach to changing referral practice within the study is interesting. There are alternatives to current practices that is worth exploring. The RCT paper associated with this study has not yet been published.
Schattner, Mathews and Pinskier, 2008	e-communication summit (Qualitative) Literature Review, feasibility study. Semi-Structured interviews	This paper discusses the Southern Managed Health Network Project, funded by the Australian Government. The aim of the project was to develop an agreed process for e-communication between GPs and other health care providers in the southern region of Melbourne. In order to achieve this aim the study conducted a review of policy documents and other literature which described incentives in e-communication, held semi-structured interviews with key stakeholders from hospitals, primary care and general practices and hosted an e-connectivity summit with representatives of these	Theme: eReferrals Country: Australia This paper is concerned with the use of e-communication by GPs. The communication is across hospital, community and allied care.

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		stakeholders. The project participants agreed that e-communication required leadership to ensure it was utilised and that each stakeholders group's priorities were managed. Security, privacy and up-to date information were the main concerns from the participants. The overall theme seemed to be that no one group wanted to take responsibility for implementation or becoming drivers of change. Inter-professional communication was not high on the priority list. There was agreement that e-communication was required, but the methods to implement were still unclear and differing priorities from different stakeholders may overall implementation difficult.	
Taggarshe, Haldipur and Singh, 2006	Cohort Study. Focus Group/Questionnaires	This paper identifies that previous referral behaviours by GPs to specific specialist may cause strain on waiting lists. The study aims to understand the effect of referral to a speciality, rather than a specialist. Focus Groups were first used to understand the GP's referral practice to secondary care - the outcomes from the focus group were developed into a survey that was then distributed. Of the 79 GPs surveyed, 78 completed the questionnaire. Of the 78, 22% stated that they made generic referrals rather than to an individual surgeon. Almost four of five GPs made referrals specifically to a named surgeon. A total of 43% of the GPs who referred to a named surgeon ranked perceived clinical skills/ competence as the most important factor. The other factors that influenced their decision in order of importance were waiting times (19%), personal rapport with consultant (12.6%) and feedback from patients (12.6%). The suggestions from the study include the creation of teams to allow for inter-specialist communication and sharing of ideas to assist with rapport building and increased medical management of patients. Mention of a "Choose and book" - e booking referral system.	Theme: GP to Specialist communication practices Country: Britian This paper explored the option of using generic, rather than named referrals form GP to secondary care.
Walshe, Chew-Graham, Todd,	Qualitative	This paper describes a study to investigate the influences on referral decisions made within community palliative care services. This study	Theme: Referral appropriateness

Table 23: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Caress, 2008	Referral	undertook a qualitative case study (including interviews, observations and documentary analysis) of three primary care trusts (including general and specialist palliative care providers, managers, patients etc.) in the United Kingdom. Results from the study demonstrated that healthcare professionals make independent judgements about referrals based on their expertise, workload and relationship with patients. Results also found that professionals referring also make judgements on the basis of who they're referring to and what they can do for their patient.	Country: Britian Referrals are subjectively made based on experience and expertise.

Table 24: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Berta, Barnsley, Bloom, Cockerill, Davis and Jaakkimainen, 2008	Systematic Literature Review Theme: Quality of referral information.	The focus of this literature review was to develop a list of items or data elements related to patient information transfer in chronic care. The review engaged an 8-member expert panel in a 2-round modified Delphi process to assess the importance of the 74 data elements identified in the literature review and to identify any additional important elements. The expert panellists reached consensus on 24 components of information, referred to within the study as minimum essential elements of a referral document. The authors of the study assembled the minimum elements into a suggested format for a referral document. The format can be easily modified by practitioners caring for patients with other chronic diseases. This review provides information for improved communication to assist with the continuity of information flow between primary and secondary care.
Bradfield, 2009	Opinion Piece Theme: GP access to MRI (Australian opinion).	This opinion piece discussed a study by Bitt and Miller (unable to locate). The paper did indicate cost savings but the highlighted that limitations were present in Bitt and Miller's study. The AMA reported that the results supported the policy and would result in a $42 million saving from fewer computed tomography (CT) scans and fewer specialist referrals and consultations. This review presents that this was not an accurate portrayal of the results. It is suggested that further research is needed, and ongoing dialogue with radiologists and other key stakeholders is urged, to ensure that access to MRI facilities will continue to meet future demand and that GPs will be adequately trained in utilising MRI services.
Dunn and Gwinnutt, 2007	Case Study Theme: Clinical and information transfer	This paper describes a case study of clinical and informational requirements during transfer of patients between departments and hospitals. The paper presents that the intra-hospital and inter-hospital transfer of critically ill

Table 24: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
	requirements	patients is an inevitable part of emergency department practice. Critically ill patients have a high risk of morbidity and mortality during transport. The current recommendations for the transfer of critically ill patients are discussed, with a particular focus on pre-transfer stabilisation, hazards during transport and the personnel, equipment and communications necessary throughout the transfer process
Edwards and Roelofs, 2005	Review Theme: setting up a referral system within a 3rd world country.	In this article, the authors describe the experiences of the University of Ottawa School of Nursing and its Chinese partner, the Yunnan Provincial Public Health Bureau, in developing and implementing a comprehensive referral system for impoverished rural women and children. Through engaging government officials, health workers, local leaders and village women in dialogue and reflection, Canadian and Chinese partners developed a common understanding about underlying determinants affecting maternal and child health services; explored appropriate intervention options; and developed an innovative comprehensive referral system.
Faulkner, Mills, Bainton, Baxter, Kinnersley and Peters, 2003	Systematic Literature review Theme: Referral Communication.	This paper was concerned with suggestions from literature that innovations are proliferating at the primary-secondary care interface, affecting referral to secondary care and resource use. The aim of this review was to review the available evidence on initiatives affecting primary care referral to specialist secondary care. The studies identified were extremely diverse in methodology, clinical subject, organisational form, and quality of evidence. The number of good quality evaluations of innovative schemes to enhance the existing capacity of primary care was small, but increasing. It was identified that well-evaluated service initiatives in this area should be supported. Organisational innovations in the structure of service provision need not increase total costs to the National Health Service (NHS), even though costs associated with referral may increase. This review provides limited, partial, and conditional support for current primary care-oriented NHS policy developments in the United Kingdom.
Lancelot, 2008	Opinion Theme: Referral Controls	This paper discusses the author's opinion on referral control and the appropriateness of referral between GP's and hospital doctors. Within the paper the minimising cross-referrals in hospitals is described. The author comments there are two sides within the cross-referral process. Comments are given toward the Primary Care Trust's edict: except in dire emergency all cross-referrals have to go via the GP.
Lossius, Kristiansen, Ringdal and Rehn, 2010	Opinion Piece/Review Theme: transfer studies between trauma units.	This paper discusses that existing research within transfers between trauma units is largely prospective studies or studies based on single-centre trauma registries. This review finds that pprospective studies and studies based on single-centre trauma registries may fail to capture an appropriate width and depth of data. The paper concludes that the creation of inclusive regional and national trauma registries that receive information from all of the services within a trauma system is a prerequisite for high quality inter-hospital transfer studies in the future.
Murray, 2002	Opinion Piece/Review Theme: strategies for	This opinion piece discusses that poor information is creating increased communication requirements because people are not sure of the referral process. The authors also identify that this also impacts to increased health

Table 24: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
	improving primary to specialist referral (US advice)	care usage, delays, increases in waiting time. Patients experience long waiting times in the health care continuum in three major areas: first, in waiting for access to an appointment in primary care; second, in the medical office itself; and third, in waiting for access to specialty care once the primary care physician has decided to refer the patient. The review finds that many articles have focused on reducing waiting times and delays in primary care, this article focused on reducing waiting times and delays between primary and specialty care.
Norwell, 2007	Review Theme: patient safety and referral management systems	This article discusses referral management systems and centres within the English National Health Service. The paper describes how some primary care centres are using referral management centres to monitor, direct and control referrals from primary to secondary care. The paper highlights that the main roles of these centres are to receive and analyse data on GP referrals, and to decide on the best treatment route. These centres may also refuse a referral letter if it is deemed inappropriate. The author discusses legal aspects of responsibility for tracking the referral, and the issue of confidentiality when referrals are sent through referral management centres. The article also discusses issues of responsibility for delayed referrals in a referral management environment, and the importance of having a central record of diagnosis and the patient journey.
Payne, Kerr, Hawker, Hardey and Powell, 2002	Systematic Literature Review Theme: Effective transfer of patient information within referrals.	This paper is a systematic literature review of studies that describe strategies and communication of information between referral and transfers between hospital and community for older people. This paper identifies that the most effective strategy for transferring information is the appointment of a 'key worker', who can provide a point of contact for workers from hospital and community. The review additionally highlights that problems have arisen because both settings are under pressure and pursuing different goals. This paper concludes that neither setting is fully aware of the needs, limitations and pressures of the other.
Tjerbo, 2010	Review Theme: impact of number of GPs on use of specialist services	This article adds to the literature in two ways; first by testing out different operational capacity and competition among GPs, and then by testing out effects of capacity and competition on use of specialist health care services as this is disaggregated into ambulatory and inpatient activities. The empirical tests indicate that GP capacity in itself does not affect use of specialist health care services. Increased competitions among GPs do, however, reduce the use of ambulatory care while the effects on the use of inpatient services are unaffected. Provides inconclusive evidence.
Vafeas, 2000	Opinion Piece/Review Theme: criteria for community nursing referrals (NHS)	This paper is a discussion of inappropriate referrals to district nursing and the development of principles to indicate need. It is identified that criteria for referral to the district nursing service need to be drawn up in response to the Audit Commission Report (1999), with the aim of reducing the number of inappropriate referrals and providing patients with a more efficient service.

Table 25: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 5 Evidence		
Author(s)	**Type: Report**	**Commentary**
Anonymous, 2008	Report Referral	This report discusses the need for real-time information in long-term acute care hospitals and skilled nursing facilities to provide best care possible and to more effectively manage costs using an electronic patient referral system.
Blesch, 2009	Report Referral	This report discusses the increased scrutiny of general practitioners in the United Kingdom to decrease the high number of self-referrals.
Charles, Fahridin and Britt, 2008	Opinion Piece Theme: Australia GP to ED referral rates.	This paper presents the referral rates data of Australian GP's to ED's within the Bettering the Evaluation and Care of Health (BEACH) program. The program found that children aged < 15 years were referred at the higher rate of 0.3 per 100 encounters; the lowest rate was among patients aged 65-74 years (0.1 per 100). Patients of non-English speaking backgrounds were seen at average rates at these encounters, but Commonwealth concession card holders were seen significantly more often (48.2 per 100 A and E referred encounters compared with an average of 41.9). Aboriginal and Torres Strait Islander patients were over represented at 3.3 per 100 compared with the BEACH average of 1.1. Patients new to the practice were seen at A and E encounters at twice the average rate (20.5 per 100 compared with 9.0 in total BEACH).
Devlin, 2010	Report Referral	This report discusses the economic benefits of peer-reviewed referrals using the Choose and Book system software.
M2 Presswire, 2004	Report Referral	This report discusses the benefits of electronic referrals systems for general practitioners in Cornwall. The implementation of electronic referral systems have improved patient communication and also, have been implemented in 75 of all Cornwell-located practices.
Valintus, 2009	Report Referral	This report discusses the environment in Australia's health care system related to referrals. The intent of the report is to provide a background for the subsequent further development of the National eHealth Transition Authority's eReferrals program.

4.6.3 Referral - Evidence Gaps Tables

Table 26: Evidence Gaps - Category 1 Evidence

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Jaatinen, Aarnio, Remes, Hannukainen and Koymari-Seilonen, 2002	Randomised controlled trial	This randomised case control study of referrals from a primary care centre in Finland explored the effects tele-consultation had on outpatient clinic referral and resource allocation. The study population included all the consultations and referrals from seven general practitioners (GPs) who were dealt with by internists and surgeons at Satakunta Central Hospital in Pori and geriatricians at Satalinna Hospital in Harjavalta over a five month period. The participants within the study were randomised into either the control group, where a conventional referral letter was sent to the hospital outpatient clinic or into the intervention group, where the GPs had to decide whether they wanted an electronic consultation with the hospital or wanted to refer the patient (i.e. to transfer responsibility for treatment).	In this study communication with the hospital specialist in the intervention group was via a secure Web-based system. For the intervention group the responsibility for treatment was maintained in the health centre in 52% of cases using teleconsultation, without any visit to hospital being required. The GPs and the hospital doctors agreed on the follow-up treatment. The study found that Telereferral increased the possibility of the GP maintaining responsibility for the treatment. The study additionally concluded the reduced number of hospital visits in the telemedicine model should produce significant cost savings.	Theme: eReferral evaluation Country: Finland This paper discusses the benefits of telemedicine of the referral process.

Table 27: Evidence Gaps - Category 2 Evidence

Author(s)	Study Type	Outcomes	Comments
			No specific Category 2 evidence was found relating to Evidence Gaps in Referral.

Table 28: Evidence Gaps - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Stiell, Forster, Stiell and van Walraven, 2003	Quantitative Analysis (not directly mentioned) Non-random sample	This paper discusses the information gaps that may occur when previously collected information is unavailable to a physician who is currently treating a patient. Within this study the prevalence of physician-reported information gaps for patients presenting to an emergency department at a teaching hospital was measured. For 1002 visits to the emergency department made by 983 patients, all information gaps identified by the emergency physician immediately after the patient was assessed were recorded. When an information gap was present, the physician was asked to identify the required information, why it was required and how important it was to the patient's care. The authors reviewed the patient charts to measure severity of illness and to determine whether the patient was referred to the emergency department by a community physician. One third of patients presenting to ED had information gaps, most common in medication history and lab results. Impacts on both the patient and health care system. Patients that were referred to ED were identified as containing greater information gaps than those presenting without a referral. This could be linked to the expectations present when patients are referred to the ED.	Theme: Including patients in the referral process Country: Canada This paper is concerned with information gaps for patients seen in EDs. Paper highlights that gaps are associated with sicker patients, and longer ED stays.

Table 29: Evidence Gaps - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Heimly, 2009	Review Theme: eReferrals.	This paper gives an overview of projects completed on the topic of electronic referral in healthcare. The first referral projects were based on standardised EDI-communication. The same basis is still used in many projects, but these are slowly being replaced by web-based solutions with possibilities for decision support and booking. The time from initiation of the first services to high volume use seems to be very much related to how well the new solutions fit with the general practitioners and specialists work practices, and if there are obvious benefits for

Table 29: Evidence Gaps - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
		the communication partners. High volume national services seem to require both political support and pressure. Some of the projects have not paid enough attention to socio-technical approaches.
Ireland, 2010	Review Theme: referral rationing	This paper discusses the introduction of a points system to prioritise referrals, and points for treatment within the National Health Service in England. The system uses a combination of assessment of health and quality of life surveys completed by the patient. The review additionally discusses the use of a similar points system within New Zealand and Canada. The paper describes how patients receive a score in points, based on their needs and the likelihood treatment will improve their quality of life. The authors explain that the points system is an explicit form of rationing, and those patients without enough points are not offered surgery.
Pitterman and Koritsas, 2005	Opinion Piece Theme: GP to specialist referral process.	This article explores the general practitioner (GP)–specialist relationship. In this article the nature of the referral process is explored, beginning with referrals frequently made by GPs in Australia and reasons for referral to specialists. The specialist, GP and patient expectations of the referral and the consultation process are also described. Specialists expect the GP to provide information about the problem to be addressed and adequate patient history, GPs expect a clear response regarding diagnosis and management as well as justification for the course of action, and patients expect clear communication and explanation of the diagnosis, treatment and follow-up requirements. When these expectations remain unmet, GPs, specialists and patients end up dissatisfied with the referral process. GP to specialist referral process is multi-layered with legal and ethical responsibilities included within the process.

Table 30: Evidence Gaps - Category 5 Evidence		
Author(s)	**Type: Report**	**Commentary**
Johnson, 2009	Report Referral	This report discusses the problems and possible liability of referral patients. The report advocates that practitioners can be held accountable to a reasonable standard of care in making the referral.
Victorian Department of Human services, 2006	Report Theme: Electronic referrals	This paper discusses the current Victorian electronic referral capabilities are fragmented and are often not standards-based, or else based on a variety of incompatible standards. There are a number of silos, or islands of connectivity, within the wide DHS community; however these silos are generally unable to communicate between each other. Electronically crossing these divides is made more difficult due to the lack of integration between referring systems. The paper provides a proposed solution that describes an open standards-based and open

Table 30: Evidence Gaps - Category 5 Evidence		
Author(s)	**Type: Report**	**Commentary**
		method of inter-agency communication that can be used by all agencies and will build on, rather than replace, existing investment in current technology and projects.

5. PART 3: A STRUCTURED EVIDENCE-BASED LITERATURE REVIEW ON ADMISSION

For the purposes of this review Admission has been broadly defined as: the processes, tools and techniques by which an episode of care is formally commenced by a health professional or health provider organisation involving their acceptance of responsibility for a patient and/or their treatment and care.

5.1. Introduction:

This section provides an introduction to the structured evidence based review on admission. It complements the methodology section above and details some specific issues pertaining to the review on admission.

The six over-arching questions structuring this review were:

1. What is the current practice to date along with barriers to, and facilitators of success, relating to:
    a. Safety (including high risk scenarios);
    b. Efficiency (costs and benefits);
    c. Sustainability and quality (effectiveness).
2. What high risk scenarios can be identified from the literature?
3. What interventions in this area were most effective?
4. What were the critical success factors or limitations of their effectiveness?
5. Is there evidence of sustainability and transferability for these interventions?
6. What are the gaps in evidence is this area?

In this regard this section provides some more detailed information on the methodological approach used in relation to the scope, identified admission scenarios, key search terms and the specific exclusion criteria utilised in relation to the filtering, selection and analysis of the final core publications to be included.

Scope

Definitional ambiguity and the range of uses of the term admission (even within a health/medical context) posed significant challenges for filtering, selection and analysis of relevant literature.

Examples of initial basic searches of major databases include (more information for clarity required here):

An initial PUBMED search on the terms admission and medical admission identified 37,655 and 14,333 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 3,645

An initial ProQuest search on the terms admission and medical admission identified 16,809 and 97 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 667

An initial CINAHL search on the terms admission and medical admission identified 9,741 and 14 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 1,250.

An initial Scopus search on the terms admission and medical admission identified 39,395 and 67,673 relevant papers. Subsequent filtering and refinement of the search terms reduced the total numbers of potentially relevant papers to: 357.

The search terms used were as follows:

Based on MeSH keywords the following terms were used in conducting the searches for referral:

- Admission;
- Admissions;
- Admission Process;
- Unplanned Admission;
- Re-Admission;
- Unplanned Re-admission;
- Hospital Entry;
- Hospital Occupancy;
- Hospitalisation;
- In-patient;
- Hospital AND Health Provider Interaction;
- Patient Flow; and
- Admission AND Medical Record.

An additional strategy employed was to use citation tracking from high-value contributions to the review.

The eHSRG also identified the following key admission scenarios to complement the search terms and refine the search strategy. These scenarios are:

- Inter-profession admissions/referrals within and between hospitals;
- Community to Hospital admissions;
- Specialist to Hospital admissions
- GP to Residential Aged Care admissions
- Police to Hospital admissions;

Literature analysed but subsequently excluded

After an initial search using key terms listed above, papers were briefly evaluated to identify those that were outside the scope of the review, i.e. not related to the admission process.

The analysis of subsequent papers identified a few papers that, while matching the search terms, had very limited, if any, relevance to the questions being posed (i.e. often only a single reference made to admission in the paper).

Given that a number of papers were excluded from the admission section of the review because their content had limited or no relevance to the research questions and/or because these papers did not contribute to understanding admission processes, tools or techniques it was consider useful to provide some examples.

Examples of excluded papers (that might appear superficially to be of direct relevance to this review) are presented below along with the basic reasoning for the paper's exclusion.

Discussion solely on internal processes

Smith, Ries, Zhang and Tulsky (2006), *Resident Approaches to Advance Care Planning on the Day Hospital Admission,* is concerned with the patent's "advance directive" wishes at

admission; there is no external communication explored. This paper also considers medical practitioners and patients attitudes. The discussion within the paper is covering internal processes - it is unclear if these processes affect the patient flow.

Ledoux, Canivet, Preiser, Lefrancq and Damas (2008), *SAPS 3 admission score: an external validation in a general intensive care population,* explores the validation of a predictor tool for hospital admissions to ICU. The focus within the paper is internal hospital processes with no external communication or influence evident.

MacLellan, Cregan, McCaughan, O'Connell and McGrath (2008), *Applying clinical process redesign methods to planned arrivals in New South Wales hospitals,* is a study of the impact the ED admissions have on planned admissions. The focus for this paper is on improving admission management however it is only concerned with admissions from the waiting list. There is no mention of using the GP within this process. This paper's point of view is within internal hospital processes.

O'Connell, Bassham, Bishop, Clarke, Hullick, King, Peek, Verma, Ben-Tovim and McGrath (2008), *Clinical process redesign for unplanned arrivals in hospitals,* reviews a redesign process across numerous hospitals within NSW. This paper is concerned with internal process management lacking discussion on communication processes. This article is an example of people looking at problems within hospitals, they start the process at the hospital door and end them once the patient leaves the hospital. While there is mention of GP involvement the discussion is not pursued.

Safeek and May (2010), *Protocols, Prompters, Bundles, Checklists, and Triggers: Synopsis of a Preventable Mortality Reduction Strategy,* reviews strategies and tools to help manage adverse events. The paper covers mostly in-hospital protocols with little attention to external communication. The discussion within the paper is concerned with reducing internal hospital risk.

Guile, Leux, Paille, Lombrail and Moret (2009), *Validation of a tool assessing appropriateness of hospital days in rehabilitation centres,* explores the development and validation of an objective list to assess appropriate admissions. Within this paper there is no external communication considered. The focus of the paper is simply a validation of a tool.

Hunter and Bains (1999), *Rates of adverse events among hospital admissions and day surgeries in Ontario from 1992 to 1997,* is concerned with changes in quality of hospital care following service reorganisation. Within the paper internal hospital events are discussed.

Vijay, Kazzaz and Refson (2008), *The same day admissions unit for elective surgery: a case study,* is concerned with the design and operation of an NHS same day surgery unit. Within this paper there is no discussion on external factors. The focus is within elective surgery, no mention of GP communication with acute care/hospital/surgery.

Intra-hospital patient flows

Helm, Ahmad Beygi and Van Oyen (2009), *The Flexible Patient Flow Simulation Framework,* discusses the use of inpatient admissions, hospital congestion and patient flow stimulation models. This paper mentions patient safety and quality of care as internal factors.

Pate and Puffe (2007), *Improving Patient Flow,* is concerned with improved patient flow within hospital. There is no consideration of external factors within the discussion. The focus of this paper is on streamlining admission and discharge processes internal to hospitals. It is an USA paper.

Bhattacharya and Zayas-Castro (2007), *Managing Patient Flow in Inpatient Services,* explores patient flow and resource allocation in regards to hospitals providing inpatient services. The modelling of in-patient processes is proposed however there is no mention of external factors within this paper.

O'Brien, Williams, Blondell and Jelinek (2006), *Impact of streaming "fast track" emergency department patients,* focuses on the effect of a 'fast track' ED service for patients unlikely to need admission. This paper has no mention of external factors.

Hospital centric focus

Ben-Tovim, Dougherty, O'Connell and McGrath (2008), *Patient journeys: the process of clinical redesign,* explores the clinical process redesign as seen from the patient point of view. Within this paper there is a discussion of clinical processes, internal policies and politics. The paper identifies that hospitals are struggling to cope with the flood of work but all activities to deal with this are internal when external options – i.e. primary care interaction may be a solution. Within this paper there is a discussion about patient journey yet the patient journey starts at the hospital door.

Tieder, Cowan, Garrison and Christakis (2008), *Variation in Inpatient Resource Utilization and Management of Apparent Life-Threatening Events,* discusses resource utilisation for in-hospital life threatening events. This paper has an in-hospital care with no discussion on events before patient presents to hospital.

Hatam, Askarian, Sarikhani and Ghaem (2010), *Necessity of Admissions in Selected Teaching University Affiliated and Private Hospitals during 2007 in Shiraz, Iran,* discusses the evaluation of appropriateness of hospital admission in an acute hospital cohort. The paper has a hospital Centric focus however does mention improving referral processes for specialist services.

Marshall, Vasilakis and El-Darzi (2005), *Length of Stay-Based Patient Flow Models: Recent Developments and Future Directions,* explores the concept that patient length of stay is modelled to study impact and suitability in hospital service management. This paper is concerned with a mainly theoretical approach, with no consideration of non-hospital factors. The discussion covers patient flow in healthcare systems however the healthcare system has been defined as a hospital.

Lambert (2004), *Improvement and Innovation in Hospital Operations: A Key to Organizational Health,* explores options for redesigning in-hospital processes to improve cost-effectiveness. The fragmented nature of the healthcare system is mentioned yet this paper has a hospital centric focus.

Language barriers not relevant to the review

Garrett, Forero, Dickson and Whelan (2008), *How are language barriers bridged in acute hospital care? The tale of two methods of data collection,* explores language barriers with two with the use of in-hospital translator services. Within this paper there is no exploration of communication within admission processes.

Medical student errors

Harding and Petrick (2008), *Nursing Student Medication Errors: A Retrospective Review,* is an exploration of adverse errors by nursing students. There is no external communication mentioned within this paper.

Patient's health literacy

Vahabi (2007), *The impact of health communication on health-related decision making,* discusses the assumption that greater availability of health information will lead to an informed health decision making process. Additionally, the paper does allow that the information communicated must be understood by the patient. This paper is only concerned with communication of health information to patients and discussion of the health literacy gap.

Hospital Utilisation

Barrett, Way, McDonald and Parfrey (2005), *Hospital utilization, efficiency and access to care during and shortly after restructuring acute care in Newfoundland and Labrador,* examines usage of health care resources after health care restructure. This paper discusses efficiency of acute care utilisation following a health service restructure with the underlying concerns of bed occupancy and bed management. There is no discussion of external factors within this paper.

Duffield, Diers, Aisbett and Roche (2009), *Churn: Patient Turnover and Case Mix,* is concerned with patient turnover and case mix within hospitals. Within this paper there is no discussion of external factors.

Discussion of hospital clinical pathways

Wolff, Taylor and McCabe (2004), *Using checklists and reminders in clinical pathways to improve hospital inpatient care,* explores the effect of using checklists in clinical pathways on the quality of inpatient hospital care. While the benefits of using checklists and pathways for in-hospital care is discussed there is no consideration of external factors. Within this paper there is a focus on clinical pathways.

Continuity of care

Navarro, Wilber and Silverstein (2008), *Improving Health Care Transitions: Targeting Resources to Vulnerable Elders,* discusses hospital resource utilisation with the aim to reduce hospital readmissions. This paper comments upon a number of continuity of care concepts and their potential impacts on hospital utilisation. There is no discussion of the admission process.

Emergency Department treated as an independent unit (USA)

Kolker (2008), *Process Modelling of Emergency Department Patient Flow: Effect of Patient Length of Stay on ED Diversion,* is concerned with modelling of patient flow through an ED. Within this paper there is no discussion of external factors or discharge planning. The ED is considered external from the hospital instead as a flow through from the hospital. This is a USA paper so ED's may function differently.

Emergency Department treated overcrowding

Campbell and Sinclair (2004), *Strategies for managing a busy emergency department,* is a reflection on increasing Emergency Physicians efficiency within the ED under time constraints and overcrowding. This paper discusses options for improving ED flow with little discussion of external factors.

Disease/Condition specific

Passov and Rundell (2008), *Analysis of Transfers From a Medical-Psychiatry Inpatient Unit to a Medical-Surgical Unit Within 48 Hours of Admission,* explores inappropriate admissions to the medical-psychiatric unit through reviewing of medical records. This paper discusses a focused screening tool to determine current medical conditions present for psychiatric admissions may reduce the amount of inappropriate psychiatric admissions. The discussion within the paper is specific to internal hospital transfers.

Taylor, Edwards, Kelly and Fielke (2009), *Improving transfer of mental health care for rural and remote consumers in South Australia,* discusses the potential for improvement in transfer of mental health care. This paper is concerned with a South Australian study. Within this paper there is no discussion around admission processes, fairly generalised towards mental health.

Handover discussion

Behara, Wears, Perry, Eisenberg, Murphy, Vanderhoef, Shapiro, Beach, Croskerry and Cosby (2005), *A Conceptual Framework for Studying the Safety of Transitions in Emergency Care, s*tudies the transitions within ED care and through the study a conceptual framework is proposed. The primarily focuses of the paper is within ED handover, but also looks at transition from pre-hospital care to ED, and from ED to hospital admission.

Alternatives to admissions, no discussion on process or communication

New Zealand Health Technology Assessment (1998), *Acute medical admissions: a critical appraisal of the literature,* presents a discussion around reasons for increasing numbers of acute admissions, and interventions (including external activities) which could reduce them. This paper is looking at why there are so many acute care admissions, how we can decrease the number and what alternatives are available. There is discussion about admission rates, how to decrease admission rates but the communication processes behind them are not discussed. This paper is of a hospital centric nature – the diagram on page 25 is of interest,

Legal aspects – Admission Bias

Bowers, Clark and Callaghan (2003), *Multidisciplinary Reflections on Assessment for Compulsory Admission: The Views of Approved Social Workers, General Practitioners, Ambulance Crews, Police, Community Psychiatric Nurses and Psychiatrists,* explores an assessment for compulsory (mental health) admission. This is a commentary paper yet admission process is biased in this case as the focus is on compulsory admissions and the legal aspects involved.

This finally produced the following figures:

> A total of 237 source materials were identified for assessment, categorisation and inclusion in the review. From these materials a subset of 33 core publications were selected for further discussion and presentation under identified themes within the body of the review.

5.2. High Risk Scenarios and Patient Safety in Admission

This section presents and discusses the major themes, issues and results identified within the literature pertaining to high risk scenarios in admission. The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

The **major evidence based themes** identified in the literature relating to high risk scenarios and patient safety around admission processes can be summarised as follows:

- **Medication communication:** the literature points to the complexity and risks of medication transfers particularly in relation to patients with multiple hospital admissions. The literature identifies that there are multiple information transitions present in the transition of care. The literature also shows the importance of accurate medication information for the treatment of medically complex patients to reduce the potential for errors.
- **Medication-related admission:** the literature points to the fact that medication related admissions for older patients are common and may be preventable. Typically older patients have complex medication orders which may increase the risk of adverse events if full and accurate information is not available at admission. The literature also acknowledges that the risk of adverse events is similar irrespective of prescribing, monitoring or patient adherence practice.
- **Pharmacist enhanced admission:** the literature provides evidence that using clinical pharmacists to review medications at the time of admission and discharge can reduce the risk of re-admission due medication errors. Additionally it notes that

exploration of the risk of adverse events and medication history needs to consider the change of treatment during a hospital episode of care.

- **Inappropriate admission:** the literature provides evidence that there are a large number of unnecessary or inappropriate admissions for older persons, particularly people with dementia. The literature highlights then importance of education for families and carers to reduce the risk of inappropriate admission. Additionally, the literature points to the importance of conducting advance care directive conversations as part of the admission process.
- **Adverse events:** the literature points to patient safety events as a potential cause for the increasing numbers of readmissions. The literature suggests a combination of hospital administration data and clinical information is required to combat this risk. The literature also points to the fact that a large number of adverse events are preventable. The literature suggests that drug errors and poor clinical management, along with communications problems may increase the risk of patient safety events.
- **Inter-hospital transfer:** the literature points to the ability to identify and categorise vulnerabilities in the transfer of patients from one institution to another for admission. The literature discusses the potential of using a systems based intervention to address communication; environment; workload; information technology; patient flow; and assignment of responsibilities.
- **Patient identification:** the literature points to the safety implications of patient misidentification upon the patient journey. Misidentification may be due to clinical information mismatch through the processes of identifying patients before treatment, administering of medication and non-staff initiated events.
- **Unplanned admission:** the literature points to the potential that forecasting medical outliers may overcome threats to increase waiting lists. The literature highlights that adequate planning is needed to assist in the reductions of unplanned admissions and the risks associated with those admissions.
- **Prior admission history:** the literature points to the potential high risk that exists for older patients who experience multiple admissions within a specific time period. The literature highlights that poor communication within the admissions period may contribute to a lack of care co-ordination.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

5.2.1 Medication communication

- **Tija, Bonner, Briesacher, McGee, Terrill, Miller (2009) Medication Discrepancies Upon Hospital to Skilled Nursing Facility Transitions [Table 33, p. 172]**

  Tija *et al.* used a cross-sectional study to describe the prevalence and type of medications; and the source of medication errors at admission to skilled nursing facilities (SNF) from hospital. Results from the study demonstrated disagreements between discharge summary and patient referral forms provided to the SNF in half of all admissions.

- **Ong, Fernandes, Cesta and Bajcar (2006) Drug-Related Problems on Hospital Admission: Relationship to Medication Information Transfer. [Table 33, p. 171]**

  Ong *et al.* identify and characterise the drug related problems (DRP)s experienced by patients with end stage renal disease (ESRD) on admission and investigate how these DRPs could be related to gaps in medication information transfer. The results of this study demonstrated that ESRD patients have drug related problems at admission that are frequently related to gaps in medication information transfer between healthcare professionals and between the healthcare providers and patients. This is an interesting study as it's looking at information within medication transfer and patients with multi admissions and identified the multiple information transitions.

- **Cornish, Knowles, Marchesano, Tam, Shadowitz and Juurlink (2005) Unintended Medication Discrepancies at the Time of Hospital Admission. [Table 33, p. 169]**

  Cornish *et al.* prospectively identified unintended discrepancies between admission medication records and a comprehensive medication history. The study identified the most common error (46.4%) was omission of a regularly used medication. Most (61.4%) of the discrepancies were judged to have no potential to cause serious harm. However, 38.6% of the discrepancies had the potential to cause moderate to severe discomfort or clinical deterioration.

- **Stone, Boehme, Mundorff, Maloney and Srivastava (2005) Hospital admission medication reconciliation in medically complex children: An observational study. [Table 33, p. 172]**

  Stone *et al.* aim to evaluate admission medication reconciliation in children with medically complex conditions (MCC) by determining the availability and accuracy of five information sources and characterising admitting order errors. The study found that children with medically complex conditions averaged 5.3 medications. 39 errors were identified in 182 admission medications with the estimated clinical risk if an adverse drug event had occurred was serious or life threatening. This paper highlights that availability and accuracy of information sources and medication omissions must be improved for this patient group.

- **Boockvar, Fishman, Kyriacou, Monias, Gavi, Cortes (2004) Adverse Events Due to Discontinuation in Drug Use and Dose Changes in Patients Transferred Between Acute and Long-term Care Facilities [Table 33, p. 167]**

  Boockvar *et al.* reviewed medical records to examine medication changes and related adverse drug events during admission to nursing homes from hospitals. They found that medication regimes changed significantly during this transition process due to poor communication.

5.2.2 Medication-related admission

- **Rogers, Wilson, Wan, Griffin, Rai and Farrell (2009) Medication-related admissions in older people: a cross-sectional, observational study. [Table 33, p. 171]**

  Rogers *et al.* aimed to characterise medication-related hospital admissions in older people and assess their preventability. This study concluded that over half all medication-related admissions in older people are preventable. The results of the study also identified older people as patients who have complex medications and this can often contribute to the cause of admission.

- **Howard, (2008) A Qualitative Exploration of the Underlying Causes of Preventable Drug-Related Morbidity in Primary Care, Resulting in Hospitalisation. [Table 33, p. 170]**

  Howard aimed to identify the underlying causes of medication-related admissions to hospital. The study identified the main causes of these problems are communication failures (between patients and healthcare professionals and different groups of healthcare professionals) and knowledge gaps (about drugs and patients' medical and medication histories). The study concluded that the causes of preventable drug related admissions are similar irrespective of whether the hospital admission is associated with a prescribing, monitoring or patient adherence problem.

5.2.3 Pharmacist enhanced admission

- **Vasileff, Whitten, Pink, Goldsworthy and Angley (2009) The effect on medication errors of pharmacists charting medication in an emergency department. [Table 32, p. 166]***

  Vasileff *et al.* discuss the effect of having pharmacist chart patient medication on admission to the ED. The objective of the study was to determine the frequency and clinical significance of medication errors when (a) pharmacists elicit medication histories in the Emergency Department after medications have been prescribed by doctors and (b) pharmacists obtain and chart medication histories prior to doctors' approval. This study found the differences between the two cohort groups were statistically significant and therefore provide evidence that

pharmacists should have access to patients' medication charts at the earliest point in the journey of care through the ED. The results also concluded that medication discrepancies were fewer when the pharmacist had access to the patients at triage.

- **Krska, Hansford, Gwyn, Seymour and Farguharson (2007) Is hospital admission a sufficiently sensitive outcome measure for evaluating medication review services? A descriptive analysis of admissions within a randomised controlled trial. [Table 31, p. 164]**

  Krska *et al.* present a study that aims to describe and assess hospital admissions occurring during a randomised controlled trial (RCT) of a pharmacist-led medication review service; to describe the admissions in terms of emergency status and main cause; to estimate the potential contribution of pharmaceutical care issues (PCIs) to admission; and to assess the proportion of admissions that could be influenced by a pharmacist intervention. The study concluded that the overall numbers of hospital admissions, medical admissions and unplanned admissions may not be sufficiently sensitive outcome measures for evaluating the impact of pharmacist interventions.

- **Dutton, Hedger, Wills, Brown, and Davies (2003) Prevent medication errors on admission. [Table 32, p. 165]**

  Dutton *et al.* undertook a study that aimed at quantifying prescribing errors relating to pre-admission medication in patients admitted to hospital. The study also assessed the impact of a hospital pharmacist in identifying and correcting these errors. The medical professionals within the hospital indicated that the patient's use of patient's own drugs can assist with reduction of medical errors as GPs may not always have a complete list of mediations. The study also concluded that the hospital pharmacist needed to be included on the multidisciplinary admission team to further reduce medical related adverse events.

5.2.4 Inappropriate admission

- **Caplan, Meller, Squires, Chan and Willett (2006) Advance care planning and hospital in the nursing home. [Table 32, p. 165]***

  Caplan *et al.* highlight that there is a need to educate older patients and their families about the likely course of dementia in order to reduce unnecessary admissions. The results of this study show that HITH and the education of Advance Care Directives have positive outcomes, both financial and health. Other outcomes include mental wellbeing of patients. The study also found that hospital admissions were also decreased through the participating aged care facility.

- **Campbell and Sinclair (2004), Strategies for managing a busy emergency department. [Table 33, p. 167]**

  Campbell and Sinclair discuss an evaluation of inappropriate hospital admissions, including views of GPs and patients. Within this study communication across acute and GP exists. It was found that the protocol used within this study may underestimate the number of patients that may be better dealt with outside of acute care. The high non-response rate of referring doctors is an area of interest within this research study, some patient notes were un-locatable - further limiting the study

5.2.5 Adverse events

- **Friedman, Encinosa, Jiang, and Mutter (2009) Do Patient Safety Events Increase Readmissions? [Table 33, p 169]**

  Friedman *et al.* explore the concept that among risk factors identified through patient records, readmission was a result through an occurrence of a patient safety event. Those patients identified as at risk for a patient safety event experienced at least one event. This study suggests the combination of hospital administration data with clinical information in order to reduce the occurrence and risk of patient safety events.

- **Bartlett, Blais, Tamblyn, Clermont and MacGibbon (2008) Impact of patient communication problems on the risk of preventable adverse events in acute care settings. [Table 33, p. 167]**

  Bartlett *et al.* sought to assess whether communication problems are associated with an increased risk of preventable adverse events. The reviewers abstracted patient characteristics, including communication problems, and details of hospital admission, and assessed the cause and preventability of identified adverse events. The results of the study found that 29% of the adverse events recorded were deemed to be preventable. Additionally the study found that drug errors or poor clinical management impacted on preventable adverse events and communication problems or a psychiatric disorder were found to increase the occurrence of preventable adverse events.

5.2.6 Inter-hospital transfer

- **Horwitz, Meredith, Schuur, Shah, Kulkarni, and Jenq (2006) Dropping the Baton: A Qualitative Analysis of Failures during the Transition from Emergency Department to Inpatient Care. [Table 33, p. 169]**

  Horwitz *et al.* aimed to identify, describe, and categorise vulnerabilities in emergency department (ED) to internal medicine patient transfers. This study concluded the transfer of a patient from the ED to internal medicine can be associated with adverse events. Specific vulnerable areas include communication, environment, workload, information technology, patient flow, and assignment of responsibility. The paper concludes that systems-based interventions could ameliorate many of these and potentially improve patient safety.

- **Eisenberg, Murphy, Sutcliffe, Wears, Schenkel and Perry (2005) Communication in Emergency Medicine: Implications for Patient Safety. [Table 33, p. 168]**

  Eisenberg *et al.* discusses communication within EDs and compares narrative to "checklist" information. Triage, testing and evaluation, handoffs and admitting were identified by the study to be areas of 'vulnerable communication processes'. The study proposed process changes in order to improve the information available to prevent potential failures and ensuring patient safety.

5.2.7 Patient identification

- **Schulmeister (2008) Patient Misidentification in Oncology Care. [Table 34, p. 173]**

  Schulmeister discusses that patient misidentification can result in medication and transfusion errors, unnecessary testing or procedures, and, in some cases, death. Patients may be misidentified when nurses mispronounce their names, refer to them by their first or last names only, are complacent and fail to check armbands, or encounter language or communication barriers. The author concludes that errors caused by patient misidentification can be prevented when healthcare providers consistently use two unique patient identifiers (other than the patient's room, examination, or chair number) to verify identities.

5.2.8 Unplanned admission

- **Moore (2003) Capacity planning - modelling unplanned admissions in the UK NHS. [Table 33, p. 170]**

  Moore presents a model developed within this study which was used to forecast the level of medical outliers that may be expected within their given timeframe. The study demonstrated that without adequate planning for rising medical admissions the outliers would represent a serious and growing threat to waiting times targets.

5.2.9 Prior admission history

- **Roland, Dusheiko, Gravelle and Parker (2005) Follow up of people aged 65 and over with a history of emergency admissions: analysis of routine admission data. [Table 33, p. 171]**

  Roland *et al.* aimed to determine the subsequent pattern of emergency admissions in older people with a history of frequent emergency admissions. The study concluded that patients with multiple emergency admissions are often identified as a high risk group for subsequent admission and substantial claims are made for interventions designed to avoid emergency admission in such patients.

5.3. Current Practices, Interventions, Critical Success Factors and Effectiveness in Admission

This section presents and discusses the major themes, issues and results identified within the Admission literature pertaining to current practices, interventions, critical success factors and effectiveness. The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

The major evidence based themes identified in the literature relating to Current Practices, Interventions, Critical Success Factors and Effectiveness in admission can be summarised as follows:

- **Readmission rates:** the literature points to the potential association between incomplete patient management and evaluation and readmissions. Additionally the literature discusses that each facility may have different admission criteria which can influence readmission rates. The literature also highlights the ability to use one particular hospitals readmission rate as an indicator for all hospital readmission rate. The literature highlights that readmissions may be more frequent within older patients and those who experienced an end of week discharge.
- **Readmission factors:** the literature points to the acknowledgment of readmissions being used as a quality of care indicator and that the elimination of all readmissions may not be possible. The concept of a readmissions chain is discussed, allowing for a more holistic presentation of the patient admissions history. The literature also points to patients potentially experiencing a higher level of readmissions when they have been discharged home and there is a lack of communication between primary and secondary care.
- **Communication issues:** the literature points to the existence of multiple pathways for the communication of medical information. The exploration of the pathways in the literature illustrated some inadequate information transfer. Additionally, communication issues presented staff with increased service burdens not normally experienced. The literature highlights that physicians are not always aware of a patient's readmission. When communication of readmission does occur it may result in the exchange of important information. The literature points to the potential for poor communication to be present during the medical assessment process. The literature highlights that there may be different priorities in place within facilities creating further communication issues. The literature additionally highlights the potential risks that are present when a patient has low levels of health literacy.
- **Emergency department utilisation:** the literature points to the advantages of the use of central patient health information upon presentation to the emergency department. The literature suggested that patient health information when provided was not utilised effectively. Additionally, the literature points to the fact that people use the emergency department as a service complement, accessing the department outside of business hours when 'normal' care was unavailable. The literature points to the appropriate use of emergency department transfer from residential aged care facilities.

- **Capacity planning:** the literature points to the presentation of non-emergency patients to the emergency department. An intermediate level of care is suggested to meet the unique needs of this patient group. Additionally, the literature highlights the subjective nature of a pre-assessment process prior to the residential aged care facility placement. The literature suggests the use of a transfer framework in order to improve capacity planning. The literature also points to the existence of a relationship between the distance of a hospital and referral rates from general practitioners. The literature found that overall day-bed-use was higher for those GPs closer to the hospital.
- **Preventable admissions:** the literature points to exploration of a long term quality of care indicator looking at the rate of hospitalisations due to ambulatory care sensitive conditions (ACSCs).
- **Pre-existing conditions:** the literature points to the fact that use of a 'present on admission' (POA) indicator frequently results in changes in the quality ranking of hospitals classified as high or low quality. The literature highlights that through the use of the POA data a significant number of hospitals were reclassified from high quality to moderate/low quality. The literature additionally highlights the importance of knowledge of, and potential impact of pre-existing conditions.
- **Prediction of risk of readmission:** the literature points to the introduction of an index for quantifying risk of death or unplanned readmission. Through this index the literature identifies that readmissions are costly and the use of this tool may assist in the reduction of cost and risk.
- **Patient safety controls:** the literature points to the impact the use of 'present on admission' data to patient safety indicators and the impact the combination of the information has on patient data. The literature points to the fact that the combination of these data may reduce the number of patient safety events. Additionally, the literature highlights that the use of POA data may assist with the improvement of patient safety controls. The present on admission additionally may assist with the identification of complications.
- **Admission avoidance:** the literature points to the fact that current processes can allow for the avoidance of traditional acute admission, or substitution of acute admission.
- **Hospital to residential aged care facility:** the literature provides evidence on the increased events of residential aged care facility transfer from an inpatient hospitalisation for older persons. The evidence contains an examination of patient admission to residential aged care facility from a hospital setting and the processes involved. The literature highlights the barriers that may be introduced through the fragmentation of care between hospitals and residential aged care facilities.
- **Admission reduction:** the literature suggests that pharmacist-led medication reviews may slightly decrease numbers of drugs prescribed within a hospital admission of an older patient. The review concluded that pharmacist-led medication review interventions do not have any effect on reducing mortality or hospital admission in older people, and cannot be assumed to provide substantial clinical benefit.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

5.3.1 Readmission rates

- **Lorch, Baiocchi, Silber, Even-Shoshan, Escobar and Small (2010) The Role of Outpatient Facilities in Explaining Variations in Risk-Adjusted Readmission Rates between Hospitals. [Table 38, p. 184]**

  Lorch *et al.* discuss that previous studies suggested a higher rate of readmissions may be an indicator of incomplete patient management or evaluation. However some published work did not find this correlation - tentatively given to the practice of hospital having differing admission

criteria for patients with specific diseases. The study concluded that ignoring outpatient facilities leads to an overstatement of the effect of NICUs on readmissions and ignores a significant cause of variations in readmissions.

- **Nasir, Lin, Bueno, Normand, Drye and Keenan (2010) Is Same-Hospital Readmission Rate a Good Surrogate for All-Hospital Readmission Rate? [Table 38, p. 185]**

  Nasir *et al,* aimed to increase understanding of the applicability of same-hospital readmission rate to the all-hospital readmission rate within this paper. The results concluded that there are too many variables within each patient and hospital makeup to logically suggest that one hospital readmission rate will be applicable to a group.

- **McLean, Mendis and Canalese (2008) A ten-year retrospective study of unplanned hospital readmissions to a regional Australian hospital. [Table 38, p. 184]***

  McLean *et al.* examine the trend in unplanned readmissions (URs) to Dubbo Base Hospital over the period 1996-2005 and assess possible correlations with basic demographic data. The study also concluded that bed availability had decreased over the same period yet deaths within the facility have been consistent. The study illustrated that hospital readmissions are a useful quality of care indicator.

- **Dobrzanska (2004) Readmissions - An evaluation of reasons for unplanned readmissions of older people: A United Kingdom and international studies literature review. [Table 38, p. 179]**

  Dobrzanska identified that there is an association between quality of inpatient care and readmission rates is questioned within this paper. The author concludes that the lack of communication between primary and secondary care may also lead to higher readmission rates, particularly when the patient has been discharged to home care.

5.3.2 Readmission factors

- **Shalchi, Saso, Li, Rowlandson and Tennant (2009, Factors influencing hospital readmission rates after acute medical treatment. [Table 38, p. 186]**

  Shalchi *et al.* discuss in-hospital options for reducing readmission rates. Within this research readmissions were studied over a two-month period. The study found that seventy-one per cent of readmissions were deemed avoidable, with discharge before conclusive therapy being the leading factor implicated (56%). Rapid throughput of patients is not associated with readmission. The study excluded any admission into ED, or surgical ward and those who were discharged from other hospitals but presented to this hospital and those who were discharge and went to seek further medical attention elsewhere.

- **Goldfield, McCullough, Hughes, Tang, Eastman, Rawlins and Averill (2008) Identifying Potentially Preventable Readmissions. [Table 38, p. 182]**

  Goldfield *et al.* discuss that previous studies had identified readmission associated with inpatient care, and the risk of readmission may be applied as a quality of care indicator. However it is acknowledge that elimination of all readmissions is not possible, even with quality of care issues taken into consideration. Within this paper the concept of a readmission chain is presented, allowing health care practitioners to consider the patients history as a whole, inside of just the readmitted event. The study concludes that in order to understand and fairly apply readmissions as a quality of care indicator, preventable and non-preventable readmissions need to be adequately accounted for.

5.3.3 Communication issues

- **Pierce and Fraser (2009) An investigation of medication information transfer and application in aged care facilities in an Australian rural setting [Table 38, p. 185]***

  Pierce and Fraser identify a number of pathways for the communication of medication information. The authors found that the majority of patients within these pathways received timely and effective transfer. One in Five patients experienced a delay of up to 4 hours. Within this study a limited number of inadequate information transfer was also identified. Through the

results of this study staff reported that for some cases they felt they were required to act beyond their normal duties in order to ensure timely medication delivery to aged care.

- **Roy, Kachalia, Woolf, Burdick, Karson and Gandhi (2009) Hospital readmissions: physician awareness and communication practices. [Table 38, p. 186]**

  Roy *et al.* aimed to identify and evaluate studies of interventions in primary care aimed at reducing medication related adverse events that result in morbidity, hospital admission, and/or mortality. The review concluded that there is relatively weak evidence to indicate that pharmacist-led medication reviews are effective in reducing hospital admissions. The paper additional concludes that there is currently no evidence for the effectiveness of other interventions which aim at reducing admissions or preventable drug related morbidity.

- **Young and Sharan (2003) Medical assessment and direct admissions to a community hospital. [Table 38, p. 189]**

  Young and Sharan discuss poor communication and admission risks with medical assessment processes. This paper also discusses that GPs have admitting rights within small hospitals. This study was focused within a small sample; however some interesting impacts for admissions policy and the need for health teams to work together in the admission avoidance were highlighted. This paper also suggests that there are differing priorities within the service for admission avoidance which may become barriers to successful implementation.

- **Baker, Gazmararian, Williams, Scott, Parker, Green, Ren and Peel (2002) Functional health literacy and the risk of hospital admission among Medicare managed care enrollees. [Table 37, p. 176]**

  Baker *et al.* conducted an investigation into whether inadequate functional health literacy is an independent risk factor for hospital admission. The results of the study found that of the participants, 29.5% were hospitalised. This study concluded that inadequate literacy was an independent risk factor for hospital admission among elderly managed care enrollees.

5.3.4 Emergency department utilisation

- **Vest (2009) Health Information Exchange and Healthcare Utilization. [Table 38, p. 188]**

  Vest tested the hypotheses that health information exchange (HIE) information access reduced emergency room visits and inpatient hospitalisations for ambulatory care sensitive conditions among medically indigent adults. The study found that access to HIE information increased health service provision and that certain diagnostic factors lead to a higher use of HIE. Factors suggested towards this increase were an inefficient utilisation of the HIE data.

- **Callen, Blundell and Prgomet (2008) Emergency Department use in a rural Australian setting: are the factors prompting attendance appropriate? [Table 38, p. 179]***

  Callen *et al.* discuss that the increases in attendance rates at emergency departments (EDs) have prompted concerns regarding inappropriate utilisation. The paper found that the majority of patients accessed the ED after business hours, when they were not able to access health care otherwise. This paper discussed that a significant portion of sample was unable to participate in the survey for various reasons. The study results were consistent with the national measures. The authors additionally discuss that there was some disagreement between health care providers and patients on the severity of the factor for ED presentation.

- **Finn, Filcker, Mackenzie, Jacobs, Fatovich, Drummond, Harris, Holman and Sprivulis (2006) Interface between residential aged care facilities and a teaching hospital emergency department in Western Australia. [Table 38, p. 180]***

  Finn *et al.* discuss that within several United States studies it has been found that approximately 40% of transfers from Aged Care to ED are inappropriate. The authors have noted that only a small amount of research exists with Australian on the pattern of ED presentation by aged care residents. The study concluded that the majority of cases presenting to ED were deemed to be appropriate.

5.3.5 Capacity planning

- **Hwang and Chang (2010) Understanding non-emergency patients admitted to hospitals through the emergency department for efficient ED functions. [Table 38, p. 183]**

  Hwang and Chang undertook a study to understand non-emergency patients admitted to the ED. Among the patients admitted through the emergency department, 13.1% were non-emergency patients. 42.8% had 4 or more diagnoses, 90.3% had 5 or more tests and 89.4% had radiology testes performed. The study concluded that non-emergency patients admitted to hospitals through the emergency department showed special needs for health care services: care continuity, improved access, and fast tracking for acute care hospital-level treatment. Additionally, the study showed the presentation of non-emergency patients to the ED needs to be better managed through the provision of an intermediate level of care.

- **Jorg, Boeije, Huijsman, de Weert and Schrijvers (2002) Objectivity in needs assessment practice: admission to a residential home. [Table 38, p. 183]**

  Jorg *et al* undertook a study to examine the pre-assessment processes for residential aged care facility placement in the Netherlands. The results of the study found that needs assessors use comparable methods in exploring the clients' motivation and assessing their needs in the relevant areas, apparently using a professional framework. This paper identified that the process is similar within an Australian context.

- **Ambery and Donald (2000) Variation in general practice medical admission rates for elderly people. [Table 38, p. 178]**

  Ambery and Donald examine the relationship between the distance to a district general hospital or to a community hospital and the reflection of higher admission rates with those GPs. The paper highlights that emergency medical admissions are rising, particularly in the elderly. Variation in admission rates between general practices has received little attention, and requires explanation.

5.3.6 Preventable admissions

- **Walker, Teare, Hogan, Lewis and Maxwell (2009) Identifying Potentially Avoidable Hospital Admissions From Canadian Long-Term Care Facilities. [Table 38, p. 188]**

  Walker *et al.* aimed to explore a long term quality of care indicator looking at the rate of hospitalisations due to ambulatory care sensitive conditions (ACSCs). As the ACSC approach to identifying potentially avoidable hospitalisations (PAH) was developed for younger community-dwelling adults in the United States, the authors sought to examine its applicability as a quality indicator for older institutionalised residents in Canada. The proportion of hospitalisations categorised as potentially avoidable hospitalisations using the original ACSCs was 47%. Using the revised definition, 55% of hospitalisations (4874) were identified as potentially avoidable. Changes to the original list of ACSCs led to more hospitalisations being categorised as potentially avoidable.

- **Zanaboni, Scalvini, Bernocchi, Borghi, Tridico, and Masella (2009) Teleconsultation service to improve healthcare in rural areas: acceptance, organizational impact and appropriateness. [Table 37, p. 177]**

  Zanaboni *et al.* follow a pilot study of teleconsultations, initiated through GP referrals to decrease hospital admissions leading to improved use of primary care and integration of secondary care. This pilot concludes that for a future routine use of this service, trust in specialists, duration and workload of teleconsultations and reimbursement should be taken into account. Managerial and policy implications emerged mainly related to the support to GPs in the provision of high quality primary care and decision-making processes in promoting similar service. [Note: this paper was found to be relates to a number of themes and so is repeated within each relevant theme area]

5.3.7 *Pre-existing conditions*

- **Glance, Osler, Mukamel and Dick (2008) Impact of the Present-on-Admission Indicator on Hospital Quality Measurement. Experience with the Agency for Healthcare Research and Quality (AHQR) Inpatient Quality Indicators. [Table 38, p. 181]**

  Glance *et al.* discuss the Inpatient Quality Indicator (IQI) the Agency for Healthcare Research and Quality (AHRQ) has constructed to measure hospital quality using routinely available administrative data. The objective of the study was to examine the impact of the Present on admission (POA) indicator on hospital quality assessment based on the AHRQ mortality measures using enhanced administrative data from California, which includes a POA indicator. The study found that the use of a POA indicator frequently results in changes in the quality ranking of hospitals classified as high quality or low quality. Through the use of the POA enhanced data, a significant number of hospitals were reclassified from high quality to moderate to low quality. The study concludes that the quality of hospital routine administrative data needs to be improved if POA indicators are to be continued to be used as a quality measure.

- **Houchens, Elixhauser and Romano (2008) How Often are Potential Patient Safety Events Present on Admission? [Table 38, p. 182]**

  Houchens *et al.* describes the impact of adding Patient Safety Indicators (PSI) to 'Present on Admission' information. The paper explores that within the US, present on admission data was added to administrative claims data – allowing for a greater use of this information towards quality improvement. Overall findings show that the use of Present on Admission information enhances the validity of Patient Safety Indictors'.

5.3.8 *Prediction of risk of readmission*

- **van Walraven, Dhalla, Bell, Etchells, Stiell, Zarnke, Austin and Forster (2010) Derivation and validation of an index to predict early death or unplanned readmission after discharge from hospital to the community. [Table 38, p. 188]**

  van Walraven *et al.* conduct an investigation into the creation and validation of an index to assist in the prevention of readmissions or deaths after discharge from hospital into the community. This paper identifies that readmissions are costly and expensive. This study introduces an index for quantifying risk of death or unplanned readmission.

5.3.9 *Patient safety controls*

- **Bahl, Thompson, Kau, Hu, and Campbell (2008) Do the AHRQ Patient Safety Indicators Flag Conditions That Are Present at the Time of Hospital Admission? [Table 38, p. 179]**

  Bahl *et al.* undertook a study where current Patient Safety Indicator (PSI) software was applied to hospital administrative data within 2006. Within the paper the impact of present of arrival (POA) values on unadjusted PSI rates was evaluated. The study found that of the thirteen PSIs, all but one were lower using the POA values. The study concluded that these results were consistent with those of the analysis of medical records.

- **Hughes, Averill, Goldfield, Gay, Muldoon, McCullough and Xiang (2006) Identifying Potentially Preventable Complications Using a Present on Admission Indicator. [Table 38, p. 183]**

  Hughes *et al.* describe an analysis with potentially preventable complications showed that (i) POA indicator is essential for identifying complications, (ii) frequency of complications varies by reason for admission and severity of illness, (iii) complications are associated with higher length of stays, hospital charges and mortality rates and (iv) hospital complication rates tend to be stable over time.

5.3.10 Admission avoidance

- **Shepperd, Doll, Angus, Clarke, Iliffe, Kalra, Ricauda, Tibaldi and Wilson (2009) Avoiding hospital admission through provision of hospital care at home: a systematic review and meta-analysis of individual patient data. [Table 38, p. 187]**

  Shepperd *et al.* identify that several gaps in the literature were exist concerning readmission, transferring of patients between hospital and home care and mortality. Within this paper a meta analysis was performed on 5 trials in which common outcomes had been measured. The results from the analysis suggest that there is no greater risk from a hospital at home care to that of an inpatient setting.

5.3.11 Hospital to residential aged care facility

- **Karmel, Gibson, Lloyd and Anderson (2009) Transitions from hospital to residential aged care in Australia. [Table 37, p. 177]***

  Karmel *et al.* undertook a study that aimed to investigate movement of people from hospital into residential aged care. An innovative record linkage method was implemented to create a national database to investigate transitions from hospital into aged care. In 2001-2002, 3.2% of hospitalisations for people aged 65+ ended with admission into residential aged care. A further 5.5% were for people already living permanently in care. Factors important in predicting admission to aged care from hospital included length of hospital stay, diagnoses, region of usual residence and hospital jurisdiction.

- **Crotty, Rowett, Spurling, Giles and Phillips (2004) Does the addition of a pharmacist transition coordinator improve evidence-based medication management and health outcomes in older adults moving from the hospital to a long-term care facility? Results of a randomized, controlled trial. [Table 36, p. 176]**

  Crotty *et al.* investigate the admission of older patients to long-term care facilities from hospitals and the suggestion that these transfers carry the risk of fragmentation of care, poor clinical outcomes, inappropriate use of emergency department services, and hospital readmission. This study concluded that older people being admitted to a long-term care facility from hospital are vulnerable to fragmentation of care and adverse events.

5.3.12 Admission reduction

- **Holland, R., Desborough, J., Goodyer, L., Hall, S., Wright, D. & Loke, Y. (2007). Does pharmacist-led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta-analysis. [Table 39, p. 190]**

  Holland *et al.* describe an exploration to determine the effects of pharmacist-led medication review in older people by means of a systematic review and meta-analysis covering 11 electronic databases. The review found that pharmacist-led medication review may slightly decrease numbers of drugs prescribed. The findings also showed that the results for additional outcomes could not be pooled, but suggested that interventions could improve knowledge and adherence. The review concluded that pharmacist-led medication review interventions do not have any effect on reducing mortality or hospital admission in older people, and cannot be assumed to provide substantial clinical benefit.

5.4. Evidence Gaps in Admission

This section presents and discusses the major themes, issues and results identified within the literature pertaining to evidence gaps in admission. It should be noted that this section is not attempting to provide a conceptual map of existing evidence gaps on admission rather it is presenting themes that were identified in the literature either explicitly as evidence gaps or as emerging directions for future activity and/or research.

The section begins with a summary of major themes, followed by a presentation of key issues and results reported in the peer-reviewed literature relating to each of these themes.

The **major evidence based themes** identified in the literature relating to evidence gaps in admission processes can be summarised as follows:

- **Admission trends**: the literature points to the need to further explore trends relating to residential aged care facility admission and the risks associated with higher dependency patients.
- **Cost effectiveness:** the literature points to an examination of clinical information sharing between a hospital and two external emergency departments in order to improve cost utilisation. Within the literature there was found to be a decrease in the cost of care at one of the participating hospitals.
- **Electronic admission:** the literature points to the need to further assess the effect of an electronic surgical booking service on patient waiting times and attendance rates. The literature found that there was no significant difference in the time from referral to admission in clinic between the intervention and control group.
- **Legal and ethical aspects:** the literature points to an exploration of a quality improvement program targeted at admission process and the expertise of project team members within a compulsory admissions process. The literature identified that there are legal and ethical imperatives within the admission process but there is a need to further clarify these issues.

A summary of **key issues and results** reported in the peer-reviewed literature relating to each of these major themes is presented below. Within each theme papers are ordered by date of publication with the most recent at the beginning of each theme.

5.4.1 Admission trends

- **Andrews-Hall, Howe and Robinson, (2007) The dynamics of residential aged care in Australia: 8-year trends in admission, separations and dependency. [Table 43, p. 196]***

  Andrews-Hall *et al.* undertook a study where the aims were to analyse changes in dependency of residents in residential aged care homes consequent upon the passing of the Commonwealth Aged Care Act in late 1997, and to establish the extent of resultant changes in the dynamics of residential aged care. The paper outlines the major changes brought by the Aged Care Act, and evidence for the effects of these changes is examined to test the hypothesis that changes in dependency generated changes in turnover and length of stay.

5.4.2 Cost effectiveness

- **Overhage, Dexter, Perkins, Cordell, McGoff, McGrath, McDonald and Clement (2002) A Randomized, Controlled Trial of Clinical Information Shared From Another Institution. [Table 41, p. 195]**

  Overhage *et al.* engaged in a randomised controlled trial observing the impact of computerised clinical information sharing between hospitals and two external ED. Within this study participants were randomised into an intervention group where the information from the ED visit was provided to their physician from the computer-based patient record system or into their control group where no information provided was provided. The results of this randomised controlled trial showed that under certain assumptions, the intervention was estimated to decrease charges for ED care by approximately $26 per encounter (P=.03) at 1 hospital, but there was no effect on charges at the other hospital.

5.4.3 Electronic admission

- **Dennison, Eisen, Towers and Clark (2006) An effective electronic surgical referral system. [Table 42, p. 195]**

  Dennision *et al* discuss the electronic booking of out-patient appointments is being rolled out in England under the 'Choose and Book' programme. This paper assesses the effect of the electronic surgical booking service on patient waiting times and attendance rates. The study found that there was no significant difference in the time from referral to admission in clinic between the within the intervention and control group. Patients pre-admitted electronically were much more likely to attend for their appointment.

5.4.4 Legal and ethical aspects

- **Lepaux (2001) Improving the quality of the admission process in a French psychiatric hospital: impact on the expertise of the professional team. [Table 41, p. 194]**

  Lepaux presents a mixed methods study involving a quality improvement program targeted at admission process and expertise of project team members. The objective of this paper was to see if a theoretical improvement plan could be realised. Through the implementation of the project, the desired improvement measures were achieved within the admissions area. Long-planned admissions had the most improvement for admission without delay (0% to 100%0 as did those patients who admissions were no pre-arranged but foreseen (0% to 45%). This study concluded that theoretical components within the research of the paper can be put into action in order to create the desired quality improvement change.

5.5 eHealth Services Research Group Commentary

This review highlights that in comparison to the numbers of papers published on discharge and to a lesser extent referral, there have been relatively few relevant publications produced on admission and admission processes, tools and techniques in the last ten years. This is partly because many of the issues that relate to admission are frequently only discussed from the perspective of 'hospital discharge' and to a lesser extent GP referral practices. It is however also evident that, as with reviews for discharge and referral, the overall numbers of high quality evidence based interventions that display a high level of potential for transferability remains relatively low.

This review has also identified that a number of publications that overtly matched the search terms had either very limited or no direct relevance to questions being posed by the review. In this regard, this review (like the reviews on discharge and referral) deliberately prioritised literature focused on processes, tools and techniques as well as experiences and insights related to the transfer of patients, information about them and/or their care from individual or teams of health professionals in one setting to those in another health organisation or setting (i.e. Inter-organisational processes rather than just intra-organisational processes).

This review highlights that admission, more than discharge and even referral, is widely discussed as a process that is part of a wider cycle of care. Within the literature, admission (e.g. to residential aged care) is frequently discussed as the other half of the process of discharging a patient from hospital. However, it is important to realise that this process is often only described briefly and then only in terms of the discharge or transfer of care. Frequently very limited attention is paid to the actual process of the arrival/acceptance of the patient and/or their information by the receiving health care provider organisation. This 'hospital-centric' view has directly impacted on the investigation of admission processes in the literature and from one perspective can be seen to have reduced the overall level of attention and interest that has been paid to admission within the literature. Similarly, while patients can be admitted to other types of services including community nursing care, respite care and various community based organisations these admission processes have generally received limited attention.

This review has identified a strong focus within the relevant admission literature on information and communication risks arising during admission as well as mechanisms to reduce re-admissions improve communication and enhance organisation responses to admissions and admission planning with the aims of improved safety, patient outcomes and management. The literature highlights that poor information collection and poor communication can increase the risks to patients at the time of admission. As with the discharge literature, a number of papers highlight medication issues, but these issues may be due to the prevalence of medication problems in general, rather than anything specific to admission (and/or discharge). There are also significant risks to patient associated with admissions that are delayed, or avoided by the patient and situations where admitted care may not be the most appropriate option for the patient. Evidence highlights that communication at the time of admission can have a positive impact on the prevention of adverse events during hospitalisation. Similarly, accurate patient identification and the recording of pre-existing conditions at admission have been identified as being crucial to safe care. All of these activities have also been important in the management of resources, costs and funding.

More specifically this review has also highlighted a number of other key perspectives in the literature including that re-admission can be seen as either a type of admission or more frequently as a failed discharge. In this regard, a number of studies have utilised re-admission rates as indicators of the quality of discharge. Literature also highlights the introduction and deployment of techniques to avoid or submit acute admission for other types of treatment and/or care and increasingly to the introduction and use of electronic admission with the aim of improve information flows and reducing patient waiting times and improving attendance rates. Noticeably, there is a surprising lack of literature examining in detail the actual processes and informational requirements involved in admission and few, if any papers concentrate on the education, training and organisational change management required to ensure safe, high quality and effective admission.

On the basis of this review it is evident that the key elements in ensuring safe and high quality admission include:

- An accurate, complete and legible document compiled during the admission process and where possible detailing any pre-existing conditions and communicated in a timely manner
- An active process of the transfer of the patient, and/or their information along with responsibility for (all or part of their care) to the healthcare provider receiving the admission and including a confirmation of their willingness to accept this role.
- Ensuring that the patient and their carer understand and are involved in any on-going treatment/care that is being planned during the process of admission and subsequently.

These processes can only be optimised if organisations involved in referral have transparent and explicit guidelines supported by education and training for health professionals (including communication with patients/carers) on the processes, tools and techniques for referral.

Above all this review highlights that admission remains a high risk scenario for patient safety with dangers of discontinuity of care, adverse events and medication errors linked to poor communication, poor quality of information and limited engagement with the patient/carer.

Importantly it is necessary to re-iterate that the specific requirements of this type of review impose an artificial separation between the processes of discharge, referral and admission that is not replicated in practice. Discharge of a patient by one care provider regularly results in admission by another, and these complementary activities are frequently accompanied by some form of referral. Ensuring safety and quality of patient care across multiple settings means that these processes should, wherever possible, not be treated in isolation.

The next section (5.6 below) presents five tables for each major section of this literature review (a total of 15 tables). These tables categorise all evidence based materials discussed above as well as other materials (categories 4 and 5 i.e. reviews, opinions and reports)

identified as of relevance. As discussed in the introduction the aim of the categorisation (1-5) is to enable readers to quickly and easily differentiate between different types of intervention based studies; and differentiate intervention based studies from pre-interventional studies, reviews, opinions and reports.

5.6. Summary Tables on Admission

5.6.1 Admission - High Risk Scenarios and Patient Safety Tables

Table 31: High Risk Scenarios and Patient Safety - Category 1 Evidence

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Krska, Hansford, Gwyn, Seymour and Farquharson, 2007	Randomised controlled trial	This study included a population of 332 elderly patients living at home, with a least four repeat medicines within a region of Scotland. Hospital data were obtained for all admissions occurring during the 9-month period studied, summarised and evaluated by two independent medical reviewers for the contribution of PCIs to admission. Two pharmacists assessed the extent to which PCIs were preventable by pharmacist intervention.	This paper presents a study where the aims were to describe and assess hospital admissions occurring during a randomised controlled trial (RCT) of a pharmacist-led medication review service; to describe the admissions in terms of emergency status and main cause; to estimate the potential contribution of pharmaceutical care issues (PCIs) to admission; and to assess the proportion of admissions that could be influenced by a pharmacist intervention. The results of the study showed that approximately two-thirds of the admissions were unplanned, and two-thirds were to medical wards. Only 22% of all admissions were considered to be related to PCIs and 13% possibly preventable by pharmacist intervention. The study concluded that the overall numbers of hospital admissions, medical admissions and unplanned admissions may not be sufficiently sensitive outcome measures for evaluating the impact of pharmacist interventions.	Theme: Pharmacist enhance admission Country: Scotland

Table 32: High Risk Scenarios and Patient Safety - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Caplan, Meller, Squires, Chan and Willett, 2006	Quantitative Analysis Retrospective and Prospectively Cohort Sample with Control.	The study within this paper objective was to evaluate a system of educating residents, their families, staff and general practitioners about outcomes of dementia, advance care planning (ACP) and hospital in the home. Authors identified a need to educate older patients and their families about the likely course of dementia in order to reduce unnecessary admissions. The intervention area consisted of two hospitals and the 21 nursing homes (NHs) around them compared with another, geographically separate, hospital and the 13 homes around it. A controlled evaluation was conducted monitoring emergency admissions to hospital. The results of this study show that HITH and the education of Advance Care Directives have positive outcomes, both financial and health. Other outcomes include mental wellbeing of patients. Hospital admissions were also decreased through the participating aged care facility. Improved cultural change was also experienced by aged care nursing staff and families.	Theme: Inappropriate admission Country: Australia This paper demonstrates the potential benefits of advanced care directives in decreasing hospital admissions.
Dutton, Hedger, Wills, Brown, and Davies, 2003	Quantitative Analysis Two part trial cohort study	The aim of this study was to quantify prescribing errors relating to pre-admission medication in patients admitted to hospital. It also assesses the impact of a hospital pharmacist in identifying and correcting these errors. Errors in the recording of pre-admission medication were treated as a prescribing error, deliberate changes were excluded from the study. A 5 type classification system for these errors was created and used throughout the 2 phase study. Phase 1 involved routine practice concerned with the in-patient drug chart. During this phase drug history was not taken and the patient's own drugs were not permitted into the hospital. Phase 2 included medicine cabinets besides patient's bedside, and the greater use of the patient's own drugs. Drugs were not self-administered. This phase showed a reduction in the number of medication related errors yet an increased time commitment towards the medical record. The medical professionals within the hospital indicated that the patient's use of POD can assist with reduction of medical errors as GPs may not always have a complete list of mediations. The study also concluded that the hospital pharmacist needed to be included on the multidisciplinary	Theme: Pharmacist enhanced admission Country: Britian This paper discusses the clinical pharmacist review of patient medication on admission to detect pre-hospital medication error. This is an interesting trial as it's combining admission processes within an internal point of view. The paper does not consider any adverse event that occurs may be due to the new course of medication - ie the treatment for why they are admitted. This is a limitation of this study.

Table 32: High Risk Scenarios and Patient Safety - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		admission team to further reduce medical related adverse events.	
Vasileff, Whitten, Pink, Goldsworthy and Angley, 2009	Quantitative Study Cohort Study with control and intervention group.	This paper discusses the effect of having pharmacist chart patient medication on admission to the ED. The objective of the study was to determine the frequency and clinical significance of medication errors when (a) pharmacists elicit medication histories in the Emergency Department after medications have been prescribed by doctors and (b) pharmacists obtain and chart medication histories prior to doctors' approval. Emergency Department patients at risk of medication misadventure were recruited in two phases with a 'usual practice' arm and a 'pharmacist medication charting' arm reflecting an alternative intervention. In the 'usual care' arm, medication histories were compiled by a pharmacy researcher after a doctor had completed the medication chart. The researcher-elicited medication histories were compared with the doctors' medication charts and unintentional discrepancies were recorded. In the 'pharmacist medication charting' arm, the same process was followed except the researcher compiled the patients' medication histories at triage, prior to patients seeing a doctor. The medication history was then transcribed onto a medication chart for authorisation by a doctor. In addition, whether resolution of unintentional discrepancies for patients in the 'usual care' arm had occurred by discharge was determined by examining patients' medical records. This study found the differences between the two cohort groups were statistically significant and therefore provides evidence that pharmacists should have access to patients medication charts at the earliest point in the journey of care through the ED. Medication discrepancies were fewer when the pharmacist had access to the patients at triage.	Theme: Pharmacist enhanced admission Country: Australia The paper suggests that further research in relation to medication reconciliation by pharmacists in ED is needed.

Table 33: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Bartlett, Blais, Tamblyn, Clermont and MacGibbon, 2008	Quantitative Analysis Retrospective audit/analysis of patient data. Random selection of 20 hospital sites within Quebec province.	This study sought to assess whether communication problems are associated with an increased risk of preventable adverse events. The reviewers abstracted patient characteristics, including communication problems, and details of hospital admission, and assessed the cause and preventability of identified adverse events. The primary outcome for this study was adverse events. Of the adverse events that occurred within the study period, 29% were judged to be preventable. The study also found that patients with preventable adverse events were significantly more likely than those without such events to have a communication problem or a psychiatric disorder. It was also found that patients who were admitted urgently were significantly more likely than patients whose admissions were elective to experience an event. Preventable adverse events were mainly due to drug errors (40%) or poor clinical management (32%). The overall results for this study found that patients with communication problems were more likely than patients without these problems to experience multiple preventable adverse events. Additionally, communication problems or a psychiatric disorder were found to increase the occurrence of preventable adverse events.	Theme: Adverse events Country: Canada This paper explores the impact of patient communication problems on adverse events (AEs) within hospital. It also includes pre-hospital occurrence and post-hospital detection of AE's. Some limitations of the study include the non-capture of adverse events that were corrected before entry onto patient records. As it was a retrospective review, the judgement and clinical handling of the patient's information was also unable to be measured.
Boockvar, Fishman, Kyriacou, Monias, Gavi, Cortes, (2004)	Quantitative Medications	This paper describes a study of medication changes and related adverse drug events during the process of admission to nursing homes from hospitals. Medical records from nursing homes and hospitals were reviewed; changes were identified and independently reviewed; adverse events were noted. Results from this study demonstrate that medication regimes changed significantly during transfers. These changes were attributed to poor communication of medication regimes between facilities. Results also demonstrated that adverse drug events were more likely to be precipitated during hospital admission, but identified after return to the nursing home.	Theme: Medication communication Country: United States The study had a very small sample size, which limited its ability to comment on adverse event episodes and patient characteristics.
Campbell and Sinclair, 2004	Qualitative Analysis (not directly mentioned)	This paper discusses an evaluation of inappropriate hospital admissions, including views of GPs and patients. Within this study communication across acute and GP exists. The protocol used within this study may underestimate the number of patients that may be better dealt with outside of acute care.	Theme: Inappropriate admission Country: Canada The high non-response rate of referring

Table 33: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	Randomised Sample	Interviews were carried out by a scripted questionnaire to patients within 36 hours of admission. If patients were unable to respond they were not included in the study - limits the study as additional elements experienced by the seriously ill etc can't participate. Overall findings showed the major preferences for both groups were same-day outpatient admission and admission to a community hospital. In a major of the cases, an alternative to acute care would be acceptable.	doctors is also an area of interest. Some patient notes were un-locatable - further limiting the study.
Cornish, Knowles, Marchesano, Tam, Shadowitz and Juurlink, 2005	Quantitative Analysis using Microsoft Excel and SPSS. Descriptive and Exploratory analysis. Prospective Cohort Study	This paper discusses the need for medication histories to be accurate in order to decrease readmissions. Prior studies suggest that unintended medication discrepancies that represent errors are common at the time of hospital admission. These errors are particularly worthy of attention because they are not likely to be detected by computerised physician order entry systems. This study aimed to prospectively identify unintended discrepancies between admission medication records and a comprehensive medication history that was subsequently performed. The primary outcome was unintended discrepancies (errors) between the physicians' admission medication orders and a comprehensive medication history obtained through interview. The most common error (46.4%) was omission of a regularly used medication. The study found that most (61.4%) of the discrepancies were judged to have no potential to cause serious harm. However, 38.6% of the discrepancies had the potential to cause moderate to severe discomfort or clinical deterioration.	Theme: Medication communication Country: Canada Highlights the prevalence of medication discrepnancies during admission, which is attributable to information systems.
Eisenberg, Murphy, Sutcliffe, Wears, Schenkel, Perry and Vanderhoef, 2005	Qualitative Analysis/Structured Observation and unstructured interviewing with the use of field notes. Two site cohort study	This paper identifies that emergency medicine is largely a communicative activity, and medical mishaps that occur in this context are too often the result of vulnerable communication processes. In this year-long qualitative study of two academic emergency departments, an interdisciplinary research team identified four such processes: triage, testing and evaluation, handoffs, and admitting. In each case, the researchers found that narrative rationality (the patient's story) was consistently subjugated to technical rationality (actionable lists). Process changes are proposed to encourage caregivers to either reconsider their course of action or request additional contextual information. A heightened awareness	Theme: Inter-hospital transfer Country: United States This paper highlights the implications for patient safety within the communication present in the ED.

Table 33: High Risk Scenarios and Patient Safety - Category 3 Evidence

Author(s)	Study Type	Outcomes	Comments
		of the bias for technical over narrative rationality and a better recognition of uncertainty in emergency medicine communication are important first steps toward anticipating potential failures and ensuring patient safety.	
Friedman, Encinosa, Jiang, and Mutter, 2009	Retrospective audit of database	This paper discusses the impact of safety events on readmissions. The authors of this paper identify that the effects of safety events on readmissions have rarely been analyzed. This study simultaneously tested the effects of safety events on risks of deaths and readmission. The population was a selection of almost 1.5 million adult surgery patients initially treated in 1088 short stay hospitals. Among risk factors identified through patient records, readmission was a result through an occurrence of a patient safety event. Those patients identified as at risk for a patient safety event experienced at least 1 event. This study suggests the combination of hospital administration data with clinical information in order to reduce the occurrence and risk of patient safety events. Those participants that had been identified as admission by transfer from another hospital were excluded from this study.	Theme: Adverse events Country: United States This is an interesting paper as it illustrates for some patient safety events there is no financial incentive for prevention. Other factors such as government, organisational and cultural barriers may also exist.
Horwitz, Meredith, Schuur, Shah, Kulkarni, and Jenq, 2006	Qualitative Analysis with Literature Review. Cross-Sectional survey study. Self-administered email questionnaires.	The study objective within this paper was to identify, describe, and categorise vulnerabilities in emergency department (ED) to internal medicine patient transfers. The study surveyed all emergency medicine house staff, emergency physician assistants, internal medicine house staff and hospitalists at an urban, academic medical centre. Respondents were asked to describe any adverse events occurring because of inadequate communication between emergency medicine and the admitting physician. In addition to communication failures, analysis of responses identified numerous contributors to error: inaccurate or incomplete information, particularly of vital signs; cultural and professional conflicts; crowding; high workload; difficulty in accessing key information such as vital signs, pending data, ED notes, ED orders, and identity of responsible physician; nonlinear patient flow; "boarding" in the ED; and ambiguous responsibility for sign-out or follow-up. This study concluded the transfer of a patient from the ED to internal medicine	Theme: Inter-hospital transfer Country: United States This paper discusses failures in transition from ED to admitted hospital care. The process of the admission between the ED to wards is highlighted as a potential area of risk.

Table 33: High Risk Scenarios and Patient Safety - Category 3 Evidence

Author(s)	Study Type	Outcomes	Comments
		can be associated with adverse events. Specific vulnerable areas include communication, environment, workload, information technology, patient flow, and assignment of responsibility. Systems-based interventions could ameliorate many of these and potentially improve patient safety.	
Howard, 2008	Two phase recruitment study. 1st GPs, 2nd Patients. Cohort Study Principles of Root Cause Analysis	This paper discusses the underlying causes of medication-related admissions to hospital. The study involved 62 participants, including 18 patients, 8 informal carers, 17 general practitioners, 12 community pharmacists, 3 practice nurses and 4 other members of healthcare staff, involved in events leading up to the patients' hospital admissions. The authors found the main causes of these problems are communication failures (between patients and healthcare professionals and different groups of healthcare professionals) and knowledge gaps (about drugs and patients' medical and medication histories). The causes of preventable drug related admissions are similar irrespective of whether the hospital admission is associated with a prescribing, monitoring or patient adherence problem. This study concluded that preventable drug related admissions are complex.	Theme: Medication-related admission Country: Britian This paper highlights the need for better communicative processes between professionals and further education and training relating to medications.
Moore, 2003	Quantitative Analysis Simulation model on retrospective data	In this paper, the study presents a model designed to explore the stochastic nature of non-elective admissions. Using historic data taken from the patient administration system of a large district general hospital situated in Plymouth, England, the model shows the importance of understanding the profile of risk behind non-elective planning. This understanding may lead to more robust waiting times planning, promoting open dialogue between the trust and its commissioners on how such risk is managed. It also allows for the setting of clear goals for admission avoidance and early discharge schemes. The model developed within this study was used to forecast the level of medical outliers that may be expected within their given timeframe. The study demonstrated that without adequate planning for rising medical admissions the outliers would represent a serious and growing threat to waiting times targets. The authors of the study conclude that models can provide a means to explore parts of 'systems' and how interactions of these parts can challenge outcome	Theme: Unplanned admission Country: Britian This paper discusses the statistical modelling of unplanned admission in NHS. There is no mention of external communication.

Table 33: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		measures. The use of the model may also enhance evidence based policy making.	
Ong, Fernandes, Cesta and Bajcar, 2006	Quantitative Analysis Prospective Cohort Study	This study aimed to identify and characterise the DRPs experienced by patients with ESRD on admission and investigate how these DRPs could be related to gaps in medication information transfer. A total of 199 DRPs were identified in 47 patients with ESRD over a 12 week period. Ninety-two percent of patients had at least one DRP on admission, with an average of 4.2 +/- 2.2 DRPs per patient. The most common DRP identified was indication for drug therapy - patient requires drug but is not receiving it (51.3%). Of the total DRPs, 130 (65%) were related to gaps in medication information transfer, with 21.5% occurring between the inpatient hospital and the ambulatory clinic pharmacists and 17.7% between the admitting physician and the patient. The results of this study demonstrate that ESRD patients have drug related problems at admission that are frequently related to gaps in medication information transfer between healthcare professionals and between the healthcare providers and patients.	Theme: Medication communication Country: Canada This paper is concerned with a disease specific study. It is interesting as it's looking at information within medication transfer and patients with multiple admissions and identified the multiple information transitions.
Roland, Dusheiko, Gravelle and Parker, 2005	Analysis of routine admission data using episode statistics	This paper aimed to determine the subsequent pattern of emergency admissions in older people with a history of frequent emergency admissions. The study conducted an analysis of routine admissions data from NHS hospitals using hospital episode statistics (HES) in England. The study population was patients aged greater than or equal to 65, greater than or equal to 75, and greater than or equal to 85 who had at least two emergency admissions in 1997-8. Within this study the main outcome measures of emergency admissions and bed use were counted for five years and compared with the general population of the same age. The results of the study found that within four to five years, admission rates and bed use in the high risk cohorts fell to the mean rate for older people. The study concluded that patients with multiple emergency admissions are often identified as a high risk group for subsequent admission and substantial claims are made for interventions designed to avoid emergency admission in such patients.	Theme: Prior multi emergency department admission history Country: Britain
Rogers, Wilson, Wan, Griffin, Rai	Occurrence screening,	This paper describes a study aimed to characterise medication-related hospital admissions in older people and assess their preventability. Medication-related	Theme: Medication-related admission

Table 33: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
and Farrell, 2009	Quantitative Analysis (SPSS). Cross sectional observational study	admissions are an important cause of hospital admissions in older people. The scope for prevention is less clear. A total of 409 patients were included in the study - 14% had medication related problems, 6.4% were admitted because of medication-related problems and 3.9% were considered to have preventable medication-related problems. Within the hospitalised patients, admissions due to adverse drug reaction increase as the number of medications taken were increased as with the number of pre-existing conditions. The study concluded that medication-related admissions are common in older people and over half are preventable. Morbidity associated with medicines used for cardiovascular disease is important. There is a difficult balance to be struck between avoiding iatrogenic illness in older people and ensuring they benefit from medications for pre-existing conditions. Opportunities exist for improving the delivery of care to reduce adverse outcomes.	Country: Britian This study is on medication related admissions and preventable admissions. The paper identifies older people as patients who have complex medications and can often be the cause of admission.
Stone, Boehme, Mundorff, Maloney and Srivastava, 2005	Prospective Quality Improvement Cohort Study	This paper describes a study where the objective was to evaluate admission medication reconciliation in children with medically complex conditions (MCC) by determining the availability and accuracy of five information sources and characterising admitting order errors. 23 children with medically complex conditions were identified from 219 admissions between 16/12/2004 and 7/01/205. The accuracy of information sources was determined by sensitivity and specificity compared with verified outpatient medication lists. The study found that children with medically complex conditions averaged 5.3 chronic medications. 39 errors were identified in 182 admission medications with the estimated clinical risk if an adverse drug event had occurred was serious or life threatening. The study found In children with MCC admitted at the institution during the study period, no medication information source was optimally available, sensitive and specific. This paper concludes that availability and accuracy of information sources and medication omissions must be improved for this patient group.	Theme: Medication communication Country: United States Further research into medical omissions of children's medications is needed.
Tija, Bonner, Brieacher, McGee, Terrill,	Quantitative Acute care-	This paper describes a cross-sectional study to describe the prevalence and type of medications and the source of medication errors upon transfer between hospitals to skilled nursing facilities (SNF). Results from the study demonstrated	Theme: Medication communication Country: United States

Table 33: High Risk Scenarios and Patient Safety - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Miller, (2009)	Residential Ager Care Facilities Medication	disagreements between discharge summary and patient referral forms in half of all admissions to the SNF.	This paper demonstrates the issues of medication errors on the transfer from hospital to skilled nursing homes.

Table 34: High Risk Scenarios and Patient Safety - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Adams, 2005	Opinion Piece/Review Theme: Medication Safety	For this study, researchers reviewed the charts of all patients admitted to the general internal medicine unit of a teaching hospital at the University of Toronto over a three-month period in 2003. Patients were included if they reported using at least four regular prescription medications before admission. Out of 523 patients, 151 (29%) qualified for the study. The average age of these patients was 77, and the majority (59%) were women. Overall, 81 patients (54%) had at least one unintended discrepancy between the admission medication orders and their usual medication. Among these 81 patients there were 140 unintended discrepancies. The most common error was the omission of a regularly used medication, followed by a discrepancy in dose, a discrepancy in frequency, and the ordering of an incorrect drug.
Royal, Smeaton, Avery, Hurwitz and Sheikh, 2006	Systematic Literature Review Theme: Admission Safety Events	This paper describes a literature review where the aim was to identify and evaluate studies of interventions in primary care aimed at reducing medication related adverse events that result in morbidity, hospital admission, and/or mortality. The review concluded that there is relatively weak evidence to indicate that pharmacist-led medication reviews are effective in reducing hospital admissions. The paper additional concludes that there is currently no evidence for the effectiveness of other interventions which aim at reducing admissions or preventable drug related morbidity. The authors call for more randomised controlled trials of primary care based pharmacist-led interventions are needed to decide whether or not this intervention is effective in reducing hospital admissions.
Schulmeister, 2008	Opinion Piece Theme: Patient Misidentification and factors that may reduce risk of occurrence.	This paper discusses that patient misidentification can result in medication and transfusion errors, unnecessary testing or procedures, and, in some cases, death. Patients may be misidentified when nurses mispronounce their names, refer to them by their first or last names only, are complacent and fail to check armbands, or encounter language or communication barriers. Errors caused by patient misidentification can be prevented when healthcare providers consistently use two unique patient identifiers (other than the patient's room, examination, or chair number) to verify identities. The paper discusses some strategies to manage the events of patient

Table 34: High Risk Scenarios and Patient Safety - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
		misidentification – some practical and some policy changes. These strategies have been developed by the Joint Commission (2008) National Patient Safety.
Tam, Knowles, Cornish and Fine, 2005	Systematic Literature Review Theme: Admission Medication Safety.	This paper describes a literature review presenting the frequency, type and clinical importance of medication history errors at hospital admission. The review found that errors in prescription medication histories occurred in up to 67% of cases: 10%– 61% had at least 1 omission error (deletion of a drug used before admission), and 13%– 22% had at least 1 commission error (addition of a drug not used before admission); 60%– 67% had at least 1 omission or commission error. Only 5 studies (*n* = 545 patients) explicitly distinguished between unintentional discrepancies and intentional therapeutic changes through discussions with ordering physicians. These studies found that 27%– 54% of patients had at least 1 medication history error and that 19%– 75% of the discrepancies were unintentional. In 6 of the studies (*n* = 588 patients), the investigators estimated that 11%–59% of the medication history errors were clinically important. The review concludes that medication history errors at the time of hospital admission are common and potentially clinically important. Improved physician training, accessible community pharmacy databases and closer teamwork between patients, physicians and pharmacists could reduce the frequency of these errors.

Table 35: High Risk Scenarios and Patient Safety - Category 5 Evidence		
Author(s)	**Type: Report**	**Commentary**
NSW Health, 2002	Report Theme: Patient Medicate Safety	This paper discusses that the process of medication use is complex. It presents that there are opportunities for confusion or misadventure during all phases of the process including prescribing, dispensing, administration and monitoring. Additionally, not all medication related problems are preventable, since most medications are associated with predictable side effects and unpredictable adverse reactions. This paper presents a number of strategies that can be employed to minimise medication incidents.

5.6.2 Admission - Current Practices, Interventions, Critical Success Factors and Effectiveness Tables

Table 36: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 1 Evidence

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Caplan, Ward, Brennan, Coconis, Board and Brown, 1999.	Randomised controlled trial	Participants were randomly allocated to be within the hospital at home group (intervention) or to be admitted to hospital as per usual treatment (control).	This randomised controlled trial aimed to compare treatment of acute illness at home and in hospital, assessing safety, effect on geriatric complications and patient/carer satisfaction. The main outcome measures for this study were geriatric complications, patient/carer satisfaction, adverse events and death. The results of this study found there was a lower incidence of confusion, urinary complications and bowel complications among the intervention group. It was additionally found that between the intervention and control group there was no significant difference in the number of adverse events and deaths. The study also found that patient/carer satisfaction was higher in the intervention group. This paper concludes that hospital in the home appears to provide a safe alternative to hospital for some patients with higher levels of patient/carer satisfaction present.	Theme: Inappropriate admission Country: Australia This intervention demonstrates improved benefits for patients.

Crotty, Rowett, Spurling, Giles and Phillips, 2004	Randomised, single-blind, controlled trial	In this study participants were randomised either to receive the services of the pharmacist transition coordinator (intervention group) or to undergo the usual hospital discharge process (control group). The intervention included medication-management transfer summaries from hospitals, timely coordinated medication reviews by accredited community pharmacists, and case conferences with physicians and pharmacists.	This randomised controlled trial is an investigation of transfers of older patients from hospitals to long-term care facilities and the suggestion that these transfers carry the risk of fragmentation of care, poor clinical outcomes, inappropriate use of emergency department services, and hospital readmission. This study was conducted to assess the impact of adding a pharmacist transition coordinator on evidence-based medication management and health outcomes in older adults undergoing first-time transfer from a hospital to a long-term care facility. The primary outcome was the quality of prescribing, measured using the Medication Appropriateness Index (MAI). Secondary outcomes were emergency department visits, hospital readmissions, adverse drug events, falls, worsening mobility, worsening behaviours, increased confusion, and worsening pain. This study concluded that older people transferring from hospital to a long-term care facility are vulnerable to fragmentation of care and adverse events. In this study, use of a pharmacist transition coordinator improved aspects of inappropriate use of medicines across health sectors.	Theme: Hospital to residential aged care facility Country: Australia

Table 37: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence

Author(s)	Study Type	Outcomes	Comments
Baker, Gazmararian, Williams, Scott, Parker, Green, Ren and Peel, 2002	Quantitative, multivariate analysis Prospective cohort	This paper investigated whether inadequate functional health literacy is an independent risk factor for hospital admission. The study sample was a prospective cohort of 3260 Medicare managed care enrolees. The results of the study found that of the participants, 29.5% were hospitalised. Through the multivariate analysis, the adjusted relative risk of hospital admission was 1.29 (95% CI=1.07, 1.55) for individuals with inadequate literacy and 1.21 (95% CI =0.97, 1.50) for those with marginal literacy. This study concluded that inadequate literacy was an independent risk factor for	Theme: Communication issues Country: United States

Table 37: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence

Author(s)	Study Type	Outcomes	Comments
		hospital admission among elderly managed care enrollees.	
Karmel, Gibson, Lloyd and Anderson, 2009	Qualitative Analysis with logistic regression model. Cohort Study A unique data linking method was applied to separate databases.	The aim of the study within this paper was to investigate movement of people from hospital into residential aged care. An innovative record linkage method was implemented to create a national database to investigate transitions from hospital into aged care. Within the period of 2001-2002, 3.2% of hospitalisations for people aged 65+ ended with admission into residential aged care. A further 5.5% were for people already living permanently in care. Nationally, more people were admitted into permanent care from hospital than from the community. This study concluded that the factors important in predicting admission to aged care from hospital included length of hospital stay, diagnoses, region of usual residence and hospital jurisdiction. Findings also suggest that individually, national hospital and aged care datasets do not provide adequate information on movement between the sectors. Linking the data allowed the first national investigation into movement from hospital into aged care. The results indicate the importance of investigating interactions of service provision (both supply and demand driven) at the local level.	Theme: Hospital to residential aged care facility Country: Australia This study examines the recording of data linkages when patients are admitted to RACFs from hospital. The paper identifies that looking at datasets, the linking between hospital and RACF, is challenging. This paper highlights the difficulty in determining patients going to RACF for the first time.
Zanaboni, Scalvini, Bernocchi, Borghi, Tridico, and Masella, 2009	Quantitative Analysis (not directly mentioned). Cohort Study.	This paper discusses a study in which the purpose was to assess the effects of the use of teleconsultation by general practitioners in rural areas. General practitioners were provided with a teleconsultation service from 2006 to 2008 to obtain a second opinion for cardiac, dermatological and diabetic problems. Access, acceptance, organisational impact, effectiveness and economics data were collected. Clinical and access data were systematically entered in a database while acceptance and organisational data were evaluated through ad hoc questionnaires. There were 957 teleconsultation contacts which resulted in access to health care services for 812 symptomatic patients living in 30 rural communities. Through the teleconsultation service, 48 general practitioners improved the appropriateness of primary care and the integration with secondary care. For a future routine use of this service, the study identified that trust in	Theme: Preventable admissions Country: Italy This paper was concerned with a pilot for teleconsultations to decrease hospital admissions leading to improved use of primary care and integration of secondary care. Some limitations of study is the focus on the actual telecommunication rather than the continuity of care with the collection of health related data and the smaller scope of the study through the non-inclusion of admission to EDs and hospitals.

Table 37: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		specialists, duration and workload of teleconsultations and reimbursement should be taken into account. Managerial and policy implications emerged mainly related to the support to GPs in the provision of high quality primary care and decision-making processes in promoting similar services.	

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Ambery and Donald, 2000	Quantitative Analysis Retrospective Audit	This paper discusses the variation between general practices in hospital admission rates for older patients. The paper highlights that emergency medical admissions are rising, particularly in the elderly. Variation in admission rates between general practices has received little attention, and requires explanation. To explore this, a retrospective review was carried out of emergency medical admissions to the District General Hospital (DGH) and the Community Hospitals (CHs) in West Gloucestershire in subjects over 75 years of age during 3 years. Additionally, a survey of general practitioner (GP) attitudes to emergency admissions was carried out. The study found a five-fold spread in DGH and CH admission rates for elderly medical emergencies was found, and a three-fold spread of overall admission rates. Rates were consistent within a practice each year. The spreads of practice mortality rates and myocardial infarction admission rates were smaller. The variation between practices was not explained by the Jarman Index or by attitudes identified in GPs. Practices with high admission rates had slighter higher annual hospital mortality rates, but lower episode fatality rates. Results also showed a relationship between the distance to a district general hospital or to a community hospital reflected higher admission rates with those GPs. Overall bed-day-use was higher for those GP's in closer proximity to either a district general hospital or a community hospital.	Theme: Capacity planning Country: Britain This is an interesting paper as it suggests that GPs are unable to deal with the high number of patients they currently are required to see and so admission rates may be influenced by GP workforce issues.

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Bahl, Thompson, Kau, Hu, and Campbell, 2008	Administrative Data applied to AHRQ software for the patient safety indicators. Cohort Study	This paper discusses the Agency for Healthcare Research and Quality (AHRQ) development of 20 patient safety indicators (PSIs) to identify potentially preventable complications of acute inpatient care based on administrative data. The objective of this study was to assess the impact of cases flagged by each PSI for diagnoses that were actually present on admission on unadjusted PSI rates. Current Patient Safety Indicator (PSI) software was applied to hospital administrative data within 2006. The impact of present of arrival (POA) values on unadjusted PSI rates was evaluated. Of the thirteen PSI's, all but 1 were lower using the POA values. These results were consistent with those of the analysis of medical records. This study found that unadjusted PSI rates do not differentiate pre-existing conditions from complications therefore as they stand, PSIs should not be used as quality measure ranking.	Theme: Patient safety controls Country: United States This paper is concerned with patient safety and the importance of accurate administration data at admissions. There is discussion on present on arrival conditions and the complications that arise from missing data.
Callen, Blundell and Prgomet, 2008	Quantitative Analysis Cross sectional survey	This paper discusses that the increases in attendance rates at emergency departments (EDs) have prompted concerns regarding inappropriate utilisation. The study examined factors instigating patient ED attendance using a cross sectional survey of 522 patients presenting to the ED of a rural hospital in Australia, during a 1-week period. The results of this study highlighted the importance of the rural hospital ED as an additional and alternate service to existing primary care facilities, particularly outside of business hours. Additionally the study found that the majority of patients accessed the ED after business hours, when they were not able to access health care otherwise. A significant portion of sample was unable to participate in the survey for various reasons. The results of this study were consistent with the national measures. Within the study there was some disagreement between health care providers and patients on the severity of the factor for ED presentation. GP referrals have been suggested to bypass the ED and be immediately referred to appropriate treatment area.	Theme: Emergency department utilisation Country: Australia This paper is concerned with factors leading to ED use (including GP unavailability) NSW study. The fact that the study is promoting attendance is of interest. The transferability of the results may be affected due to the location and setting of the study.
Dobrzanska, 2004	13 year Literature	This paper discusses the factors affecting readmission in the elderly. Within the	Theme: Readmission rates

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	Review using a multiple number of databases. Aim was to increase overall understanding of readmissions in order to engage in better resource planning.	paper discrepancies of the definition of admission and readmission are illustrated. The paper also discusses that the same discrepancies existed over the classification of elderly. There were several themes that emerged from the literature, and these have been described within the paper. Following the review of the literature it emerged that many international studies into the causes of readmission of older people have an inconsistent approach in defining certain terms. However, in the United Kingdom, there appears a more consistent approach. This review discovered disease specific readmission programs is lacking in the literature. The association between quality of inpatient care and readmission rates is questioned. The lack of communication between primary and secondary care may also lead to higher readmission rates, particularly when the patient has been discharged to home care. The need for greater qualitative research on practitioners and patients views on readmission is called for from the findings of this study.	Country: United Kingdom This paper uses a broad definition of readmission and discusses the continuum of care, from hospital into the community. The authors suggest there is a gap in current research using qualitative studies.
Finn, Filcker, Mackenzie, Jacobs, Fatovich, Drummond, Harris, Holman and Sprivulis, 2006	Mixed Methods Retrospective Cohort Study	This paper discusses that within several United States studies it has been found that approximately 40% of transfers from Aged Care to ED are inappropriate. The authors have noted that only a small amount of research exists with Australian on the pattern of ED presentation by aged care residents. The objective of this study was to estimate the appropriateness of emergency department (ED) presentations by people aged>or=65 years living in residential care facilities. 541 residents aged>or=65 years were transferred by ambulance to the ED, comprising 8.3% of all ED presentations of people in this age group. The mean age of the study cohort was 83.7 years (SD, 7.0 years), of which 68% were women. Of the 541 presentations, 326 (60%) resulted in hospital admission, and of these, 276 (85%) survived to hospital discharge All hospital admissions were automatically deemed appropriate attendances during the course of the research study. 16 of the 28 admissions were deemed inappropriate, however for the research studies purposes were still considered to be an appropriate ED presentation. SPSS was used for analysis of quantitative data, qualitative data consisted of comments from the study's panel members on the major issues facing ED presentations from aged care.	Theme: Emergency department utilisation Country: Australia This paper discusses the appropriateness of ED presentations by aged care facility residents. The underlying question relating to this paper is do people actually need to go to ED when they should be appropriately treated at the aged care facility?

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		The study concluded that the majority of cases presenting to ED were deemed to be appropriate.	
Friedman, Encinosa, Jiang, and Mutter, 2009	Retrospective audit of database	This paper identifies that emergency medicine is largely a communicative activity, and medical mishaps that occur in this context are too often the result of vulnerable communication processes. In this year-long qualitative study of two academic emergency departments, an interdisciplinary research team identified four such processes: triage, testing and evaluation, handoffs, and admitting. In each case, we found that narrative rationality (the patient's story) was consistently subjugated to technical rationality (actionable lists). Process changes are proposed to encourage caregivers to either reconsider their course of action or request additional contextual information. A heightened awareness of the bias for technical over narrative rationality and a better recognition of uncertainty in emergency medicine communication are important first steps toward anticipating potential failures and ensuring patient safety.	Theme: Adverse events Country: United States This paper reviews the impact of communication in EDs and compares narrative to “checklist” information.
Glance, Osler, Mukamel and Dick, 2008	Quantitative Analysis using Agency for Healthcare Research and Quality Inpatient Quality Indicator software Cohort Study	This paper discusses the Inpatient Quality Indicator (IQI) the Agency for Healthcare Research and Quality (AHRQ) has constructed to measure hospital quality using routinely available administrative data. The objective of the study was to examine the impact of the Present on admission (POA) indicator on hospital quality assessment based on the AHRQ mortality measures using enhanced administrative data from California, which includes a POA indicator. For this study the AHRQ IQI software was used to calculate risk-adjusted mortality rates using either (1) routine administrative data that included all the International Classification of Diseases (ICD)-9-CM codes or (2) enhanced administrative data that included only the ICD-9-CM codes representing pre-existing conditions. The study found that the use of a POA indicator frequently results in changes in the quality ranking of hospitals classified as high quality or low quality. Through the use of the POA enhanced data, a significant number of hospitals were reclassified from high quality to moderate to low quality. The study concludes that the quality of hospital routine administrative data needs to be improved if POA indicators are to be continued to be used as a quality measure.	Theme: Pre-existing conditions Country: United States This paper is looking at administration data and the importance of present of admission information on risk ranking. The paper provides a discussion about quality reporting.

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Goldfield, McCullough, Hughes, Tang, Eastman, Rawlins and Averill, 2008		This paper discusses that previous studies had identified readmission associated with inpatient care, and the risk of readmission may be applied as a quality of care indicator. However it is acknowledge that elimination of all readmissions is not possible, even with quality of care issues taken into consideration. This study defines readmissions as clinical readmissions (potentially unavoidable) and potentially preventable readmission (PPR). The concept of a readmission chain is presented, allowing health care practitioners to consider the patients history as a whole, inside of just the readmitted event. The study concludes that in order to understand and fairly apply readmissions as a quality of care indicator, preventable and non-preventable readmissions need to be adequately accounted for.	Theme: Readmission factors Country: United States This paper is concerned with the identification and analysis of readmissions within an USA setting. The paper suggests that the rate of readmission may be an indicator for quality of care received in initial inpatient care episode.
Houchens, Elixhauser and Romano, 2008	Quantitative comparison of data from inpatient databases. Patient Safety Indicators were examined and the impact of adding 'present of admission' information was measured. Weighted Pearson and Spearman rank correlation coefficients between the hospital-level PSI rates before and after eliminating the POA diagnoses.	This paper describes the impact of adding Patient Safety Indicators (PSI) to 'Present on Admission' information. Within the US, present on admission data was added to administrative claims data – allowing for a greater use of this information towards quality improvement. Coding between California and New York data was show to be fairly consistent when dealing with Present of Admission information. The majority of referred patients were women and their average age was 52 years. Headache was the leading symptom, followed by fatigue. The mean number of reported symptoms for each individual patient was 10. Mental health problems were mainly somatisation, depression and anxiety. The average yearly costs per person of US$4035 were reduced to US$1161 the year following referral. Overall findings show that the use of Present on Admission information enhances the validity of Patient Safety Indictors'.	Theme: Pre-existing conditions Country: United States This paper is concerned with Admission Safety Events. It is a small study and the short time duration limits the transferability of the results.

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Hughes, Averill, Goldfield, Gay, Muldoon, McCullough and Xiang, 2006	Quantitative Analysis using descriptive statistics. Literature Review and Hospital Admission Data Audit	This paper discusses the development of the Potentially Preventable Complications (PPCs) method. The PPCs uses present of admission data (POA) to identify in-hospital complications among secondary diagnoses. The analysis with PPCs showed that (i) POA indicator is essential for identifying complications, (ii) frequency of complications varies by reason for admission and severity of illness, (iii) complications are associated with higher length of stays, hospital charges and mortality rates and (iv) hospital complication rates tend to be stable over time. The study concludes that along with the value demonstrated of the PPC model method, the reason for admission and co morbid conditions have a dramatic effect on the risk of complications.	Theme: Patient safety controls Country: United States This paper explores the role of 'present on admission' data in the reduction of potentially preventable complications.
Hwang and Chang, 2010	Exploratory descriptive design. Quantitative Analysis through SAS. Retrospective Cohort Study	This paper discusses that ED overcrowding and inefficient flow are closely related to the presence of non-emergency patients. This study aims to examine the characteristics of the non-emergency patients admitted to hospitals through the emergency department by comparison with emergency ED patients and inpatients admitted through outpatient departments, in terms of patient demographics and health care utilisation and outcomes. Within the study population, among the patients admitted through the emergency department, 13.1% were non-emergency patients. 42.8% had 4 or more diagnoses, 90.3% had 5 or more tests and 89.4% had radiology testes performed. The study illustrated that the presentation of non-emergency patients to the ED needs to be better managed through the provision of an intermediate level of care. The study concluded that non-emergency patients admitted to hospitals through the emergency department showed special needs for health care services: care continuity, improved access, and fast tracking for acute care hospital-level treatment. Suggestions from this study include health care policies and strategies for efficient ED functions	Theme: Capacity planning Country: South Korea This paper is concerned with a comparison of emergency and non-emergency patients admitted to ED. The discussion also covers efficiency and patient flow.
Jorg, Boeije, Huijsman, de Weert and Schrijvers,	Qualitative grounded theory approach.	This paper examines how needs assessors explore the clients' expressed needs, determine their normative needs and advise on allocation. Needs assessors perform these tasks in a situation where a clear professional	Theme: Capacity planning Country: The Netherlands

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
2002	Cohort Study Observation of house calls made to clients. Semi Structure Interviews were held with assessors after each visit.	framework is absent, and moreover, residential home capacity is limited. A qualitative study was undertaken, observing 13 house calls of clients requesting admission to a residential home. Within the study results it was found that needs assessors use comparable methods in exploring the clients' motivation and assessing their needs in the relevant areas, apparently using a professional framework. However, when transforming the needs of clients into an adequate allocation, needs assessors struggled with interpretation of criteria and included their personal ideas of services into the allocation decision.	This paper discusses a study from the Netherlands. The study is concerned with assessment pre RACF placement. Additionally, the study is looking at subjectivity in the assessment process. This is similar to processes within Australia.
Lorch, Baiocchi, Silber, Even-Shoshan, Escobar and Small, 2010	Quantitative Analysis Retrospective Cohort Study Poisson's Regression models determined risk-adjusted variation in unplanned admissions.	This paper discusses the impact of outpatient care on paediatric readmission rates. The authors illustrate that previous studies suggested that a higher rate of readmissions may be an indicator of incomplete patient management or evaluation. For this study data was collected from surviving infants born between January 1, 1998 and December 12, 2001 at five Northern California Kaiser Permanente neonatal intensive care units (NICU) with 1-year follow-up at 32 outpatient facilities. Prospectively collected maternal and infant hospital data were linked to inpatient, outpatient, and pharmacy databases. The study found that medical and socio-demographic factors explained the largest amount of variation in risk-adjusted readmission rates. NICU facilities were significantly associated with readmission rates up to 1 year after discharge, but the outpatient facility where patients received outpatient care could explain much of this variation. The characteristics of outpatient facilities, not the NICUs, were associated with variations in readmission rates. The study concluded that ignoring outpatient facilities leads to an overstatement of the effect of NICUs on readmissions and ignores a significant cause of variations in readmissions.	Theme: Readmission rates Country: United States This paper discusses the concept that in specialised areas there may be greater influence on re-admission rates. A question raised within this study is what criteria are being placed on readmissions? The study also raises the question of is the outpatient facility a factor of policy or administration processes? This is USA research so insurance factors were also taken into consideration.
McLean, Mendis and Canalese, 2008	Quantitative Study Long-term (1996-2005) retrospective study of unplanned admission trends and correlations	The purpose of this study was to examine the trend in unplanned readmissions (URs) to Dubbo Base Hospital over the period 1996-2005 and assess possible correlations with basic demographic data. Number of readmissions for this sample has increased from 4.7% of total admissions in 1996 to 5.4% in 2005. The authors found the proportion of URs for people aged 75 years has more	Theme: Readmission rates Country: Australia This paper discusses factors influencing readmission rates in a

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	with demographic data.	than doubled over the same period. Fifty percent of URs occurred within 7 days of discharge. There was a statistically significant but small correlation between length of prior admission and time to readmission (Spearman correlation coefficient, 0.068; P < 0.01) although the time to readmission did not change over the study period. Unplanned readmissions were at the highest levels during the period of July to October and during a weekday time line, on a Friday. Study also concluded that bed availability has decreased over the same period yet deaths have been consistent. The study illustrated that hospital readmissions are a useful quality of care indicator.	NSW setting. Some limiting factors were this was a single Centre Study with small sample. As the study was conducted in a regional hospital, factors different from metro hospitals such as the level of local care and GP access may have an impact.
Nasir, Lin, Bueno, Normand, Drye and Keenan, 2010	Quantitative Analysis Random sample selection of hospital data. 501, 234 hospitalisations were included within the study.	The objective of the study was to evaluate whether same-hospital readmission rate is a good surrogate for all-hospital readmission rate. Overall, 80.9% of all HF readmissions occurred in the same- hospital, whereas 19.1% of readmissions occurred in a different hospital. The mean difference between all- versus same-hospital RSRR was 4.7 +/- 1.0%, ranging from 0.9% to 10.5% across these hospitals with 25th, 50th, and 75th percentiles of 4.1%, 4.7%, and 5.2%, respectively, and was variable across the range of average RSRR. This study found that using same hospital readmission rate created a strong bias in favour of hospitals who had patients readmitted at another facility. Additionally the study concluded that whilst same-hospital-readmission rate cannot be used for all-hospital-readmission rates, study presents that this method may be valuable in examining internal factors impacting on readmission.	Theme: Readmission rates Country: United States This paper aimed to increase understanding of the applicability of same-hospital readmission rate to the all-hospital readmission rate. The study concluded that there were too many variables within each patient and hospital makeup to logically suggest that one hospital readmission rate will be applicable to a group.
Pierce and Fraser, 2009	Questionnaires based on observed admission. Cohort Observation Study	This paper highlights that as patients move within Australia's increasingly complex healthcare system, it is desirable that they receive uninterrupted, timely and accurate administration of medication. For this to occur, effective communication of medication information is required, and mechanisms must be in place to ensure timely administration. This study focused on these issues as they apply to patients being admitted to aged care facilities in an Australian rural setting, including investigation of the transfer and early application of information about their current medications (or 'medication information').	Theme: Communication issues Country: Australia This paper is concerned with medication information and pathways for communication. A limitation of this study is the single centre and small sample size.

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		Within the study a number of pathways for the communication of medication information were identified. The majority of patients within these pathways received timely and effective transfer. One in Five patients experienced a delay of up to 4 hours. A limited number of inadequate information transfer was also identified. Staff involved within the study reported that for some cases they felt they were required to act beyond their normal duties in order to ensure timely medication delivery to aged care residents. The study concluded that inter-professional links were identified as one success factor to overcoming identified limitations within the current information pathways process.	
Roy, Kachalia, Woolf, Burdick, Karson and Gandhi, 2009	Quantitative Cross-Sectional Study using logistic regression and generalised estimating equations approach to the analysis. Analysis was done using SAS. Prospective Cohort Study	Study objective within this paper was to measure physician awareness of and communication about readmissions. This lost opportunity to share information about readmitted patients may be detrimental to quality of care and resident education. A total of 432 patients discharged from the general medicine services and then readmitted within 14 days were included within this study. Discharging physician teams were aware of 48.5% of patient readmissions. Communication between teams occurred on 43.7%. Higher medical complexity was associated with an increased likelihood of physician communication. When communication occurred, readmitting physicians received information about the discharging team's overall assessment, psychosocial issues, pending tests, and discharge medications. When communication did not occur, most physicians responded it would have been desirable to communicate. The study findings indicate that physicians are frequently unaware of patient readmissions and often do not communicate when readmissions do occur. The communication about the readmission is preferred and has been shown to result in the exchange of important patient information. This study provides a base for further work for system design to address these issues.	Theme: Communication issues Country: United States This paper discusses information that is lost due to readmissions and the quality of that information and its impact on care.
Shalchi, Saso, Li, Rowlandson and	Quantitative, statistical analysis through SPSS	This paper discusses in-hospital options for reducing readmission rates. Within this research readmissions were studied over a two-month period. Patients	Theme: Readmission factors

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Tennant, 2009	Retrospective, observational study.	were identified through the hospital coding system, and electronic discharge summaries provided details of each admission. In total, 69 readmissions were identified, representing 4.34% of medical admissions. Readmitted patients were older than those with single admissions (median age 75 and 71 years, respectively; $p < 0.05$). Initial length of stay was greater in those patients who would go on to be readmitted (median six days; single admission, two days; $p < 0.0001$). The study found that seventy-one per cent of readmissions were deemed avoidable, with discharge before conclusive therapy being the leading factor implicated (56%). Rapid throughput of patients is not associated with readmission. The study additionally concluded that readmissions were in the older age gap, had a generally shorter length of stay in their initial admission and were most commonly discharged on the Friday and readmitted on the Tuesday.	Country: Britian This study excluded any admission into ED, or surgical ward and those who were discharged from other hospitals but presented to this hospital and those who were discharge and went to seek further medical attention elsewhere.
Shepperd, Doll, Angus, Clarke, Iliffe, Kalra, Ricauda, Tibaldi and Wilson, 2009	Systematic Literature and meta-analysis (on 5 trials selected). Investigation of benefits of in-home care as an alternative to hospital admission.	Study objective within this paper was to investigation avoidance of admission through provision of hospital care at home is a scheme whereby health care professionals provide active treatment in the patient's home for a condition that would otherwise require inpatient treatment in an acute care hospital. The authors sought to compare the effectiveness of this method of caring for patients with that type of in-hospital care The study found there was no significant difference in mortality at 3 months for patients who received hospital care at home. However, at 6 months, mortality was significantly lower for these patients. Admissions to hospital were greater, but not significantly so, for patients receiving hospital care at home. Patients receiving hospital care at home reported greater satisfaction than those receiving inpatient care. These programs were less expensive than admission to an acute care hospital ward when the analysis was restricted to treatment actually received and when the costs of informal care were excluded. Several existing gaps in the literature were identified concerning readmission, transferring of patients between hospital and home care and mortality. A meta analysis was performed on 5 trials where common outcomes had been measured. The results from the analysis suggest that there are no greater risks	Theme: Admission avoidance Country: Britian This paper discusses an alternative method of managing patients. Limiting factors of this paper is that is doesn't mention communication or external processes, with only one mention of primary physician in the introduction. Substitution of hospital care for home care. This paper is an Interesting discussion point for commentary. The paper is suggesting they are avoiding admissions but they are not, just moving patients to another 'centre of care'. The difficultly of conducting RCT within service provision innovations is acknowledged in this study.

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence

Author(s)	Study Type	Outcomes	Comments
		from a hospital at home care to that of an inpatient setting.	
van Walraven, Dhalla, Bell, Etchells, Stiell, Zarnke, Austin and Forster, 2010	Quantitative, Multivariable logistic regression. Prospective Cohort Study, random split sample design.	This paper presents an investigation into the creation and validation of an index to assist in the prevention of readmissions or deaths after discharge from hospital into the community. Within the study setting, of the 4812 participating patients, 385 died or were readmitted on an unplanned basis within 30 days after discharge. Scores using the LACE index ranged from 0 (2.0% expected risk of death or urgent readmission within 30 days) to 19. The LACE index was discriminative and very accurate at predicting out-come risk.	Theme: Prediction of risk of readmission Country: Canada This paper discusses that readmissions are costly and expensive. This study introduces an index for quantifying risk of death or unplanned readmission.
Vest, 2009	Cohort Study with hospitalisation due to ambulatory care sensitive hospitalisations and emergency department visits as dependant variables Retrospective audit of patient data	This study tested the hypotheses that HIE information access reduced emergency room visits and inpatient hospitalisations for ambulatory care sensitive conditions among medically indigent adults. HIE access was quantified by how frequently system users' accessed patients' data. Encounter counts were modelled using zero inflated binomial regression. HIE was not accessed for 43% of individuals. Patient factors associated with accessed data included: prior utilisation, chronic conditions, and age. Higher levels of information access were significantly associated with increased counts of all encounter types. The study found access to (Health Information Exchange) HIE information increase health service provision and that certain diagnostic factors lead to a higher use of HIE. Factors suggested towards this increase were an inefficient utilisation of the HIE data. Ultimately, these results imply that HIE information access did not transform care in the ways many would expect. Expectations in utilisation reductions, however logical, may have to be re-evaluated or postponed	Theme: Emergency department utilisation Country: United States This paper discusses the impact of access to patient data through IHE on patient care in clinics. Within the study little impact was identified. This article is linked to 2 RCT which have been sourced for this review (Overhage, et al. 2002 and Lang et al., 2006).
Walker, Teare, Hogan, Lewis and Maxwell, 2009	Retrospective Audit Three stage investigation using hospital administrative data with feedback from an expert panel in the	This study aimed to explore a long term quality of care indicator looking at rate of hospitalisations due to ambulatory care sensitive conditions (ACSCs). As the ACSC approach to identifying potentially avoidable hospitalisations (PAH) was developed for younger community-dwelling adults in the United States, the authors sought to examine its applicability as a quality indicator for older institutionalised residents in Canada.	Theme: Preventable admissions Country: Canada This paper describes looking at potentially avoidable hospitalisations for long term care patients. Within this

Table 38: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
	second phase.	The proportion of hospitalisations categorised as potentially avoidable hospitalisations using the original ACSCs was 47%. Using the revised definition, 55% of hospitalisations (4874) were identified as potentially avoidable. The study found that changes to the original list of ACSCs led to more hospitalisations being categorised as potentially avoidable. Significant variation between LTC facilities and over time in our PAH indicator may identify areas for improvement in preventive services and continuity of care for LTC residents.	study Residential Aged Care Facilities are a focus. The paper is concerned with the prevention of hospital admission and keeping people in RACF.
Young and Sharan, 2003	Qualitative Analysis (not directly mentioned) Retrospective Audit	This paper discusses poor communication and admission risks with medical assessment processes. It also discusses that GP's have admitting rights within small hospitals. A new tier of intermediate care services for older people is being introduced in England and one function of these services will be district general hospital (DGH) admission avoidance. Concern has been expressed that this situation might compromise a prompt medical assessment. Within the study method the records of 81 of 87 patients admitted directly to the community hospital were available. For 69% of patients, admission timeline was over the three hour guidelines. Attempts were made to reduce this yet the ambulance service was unable to allocate greater priority as the patients were classified as non-urgent. The study proposed patients were to be referred to the non-acute service from home, yet in practice this was not achieved. The non-involvement of the entire health team has been attributed to this.	Theme: Communication issues Country: Britian This was a small sample; however some interesting impacts for admissions policy and the need for health teams to work together in the admission avoidance is required. Also suggests that there are differing priorities within the service for admission avoidance which may become barriers to successful implementation.

Table 39: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Critical Care Med, 1999	Literature Review Theme: ICU triaging and process	This review aimed to provide guidelines for admission, discharge, and triage of adult patients to the intensive care unit (ICU), based on expert opinion and the relevant literature. Publications relevant to the admission, discharge,

Table 39: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
	improvement.	and triage of patients to the ICU were obtained from the medical literature. The articles were reviewed and graded levels of recommendation made based on a rating system described in the text. Although little scientifically rigorous data exist validating the criteria for admission, discharge, and triage of adult patients to the ICU, current literature and expert opinion support guidelines to streamline the admission, discharge, and triage process.
Dinsdale, 2006	Opinion Piece/Review of Pilot Theme: nurse-led emergency assessment for the management of referrals, admissions, and in-home care.	This paper focuses on the issue that managing admissions to hospital is one of the biggest challenges facing many NHS trusts, and senior nurses are at the forefront of controlling the flow of patients into wards. This review discusses a scheme created by a trust in the Midlands to assist in collaboration between primary and secondary care. The development grew from a combination of circumstances at the hospital in recent years. Investigators within the study found that many big hospitals in the US were reducing admissions by redirecting people to be seen in the community by nurses and rapid response teams. Use of the unit has reduced the admissions to the hospital, increasing patient flow. Making the unit more patient focus has lead to less sociable working house. Loss of hospital admission income has been partially regained through other treatment areas.
Gibson, 2002	Review Theme: Health Care Utilisation/Aged Care	This paper is concerned with the interface between hospitals and RACFs. There is an increase in expenditure on older people in hospital and in RACF. An increase in expenditure within community care for older people is noted to be higher but the rise is coming off from a much lower base. Paper concludes there is a decrease in length of stay that leads to and increase in separations within the hospital environment.
Goldfield, 2010	Editorial theme: strategies to manage preventable readmissions.	This editorial presents four strategies for reducing unplanned readmissions, use of tools, quality improvement strategies, use of payment incentives and use public reporting for readmissions. One of these tools discussed isThe LACE Index is one of several tools that can help identify preventable readmissions to hospital.9-14 Two types of tools have been developed. The mathematical (typically logistic regression) model uses data to identify factors that may predict readmission. The categorical model uses clinical logic to determine the likelihood that readmission is potentially preventable combined with subsequent validation of the data. Several issues should be considered when developing a tool to identify preventable readmission to hospital, particularly when defining what is, in fact, preventable. Within the LACE Index uses an all-cause readmission approach - that is, all readmissions are considered preventable.Van Walraven, 2010 is mentioned within this editorial.
Holland, Desborough, Goodyer, Hall, Wright and Loke, 2007	Review theme: strategies to achieve admission reduction.	This paper describes an exploration to determine the effects of pharmacist-led medication review in older people by means of a systematic review and meta-analysis covering 11 electronic databases. Randomised controlled trials in any setting, concerning older people (mean age > 60 years), were considered, aimed at optimising drug regimens and improving patient outcomes. The review's primary outcome was emergency hospital admission (all cause). Secondary outcomes were mortality and numbers of drugs prescribed. The review found that pharmacist-led medication review may slightly decrease numbers of drugs prescribed. The findings also showed that the results for additional outcomes could not be pooled, but suggested that interventions could improve knowledge

Table 39: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
		and adherence. The review concluded that pharmacist-led medication review interventions do not have any effect on reducing mortality or hospital admission in older people, and cannot be assumed to provide substantial clinical benefit. Additionally, this paper concludes that such interventions may improve drug knowledge and adherence, but there are insufficient data to know whether quality of life is improved.
Lexchin, 2009	Opinion Piece Theme: Essential RACF referrals.	This opinion piece is correspondence from an emergency physician comments a 2009 article entitled "Are long-term care residents referred appropriately to hospital emergency departments?" The author of the letter comments that one dimension of the issue has been overlooked -the quality of the documentation that is sent with patients. He states that high-quality information is always important, but even more so for cases in which patients are unable to provide a thorough history owing to either their acute illness or dementia. The author has patients sent to emergency departments with minimal amounts of information (eg. documentation does not mention how long the symptoms have been present, recent hospital discharge summaries are not included, results of physician examinations for the same problem are not present). In addition, transfer forms might not indicate whether the family has been called, and advanced directives might have been signed years ago and not updated. Future studies determining the appropriateness of transfers need to examine more than just the diagnoses of patients and whether or not they were admitted to hospital.
Monik, 2007	Case Study Theme: Inter hospital patient transfer experience	This paper discusses patient transfer from hospital to hospital. Planned process is required and described one Canadian hospital experience. The process provides critical information regarding a patient's condition well before repatriation so staff can confirm that the patient's needs are safely met. HDGH is a community hospital with 278 acute care beds, and is the trauma centre for the community and the lead hospital for neurosciences, nephrology, cardiology, orthopaedics and mental health. However, the hospital does not provide some patient services, including cardiovascular surgery. Adult and paediatric patients who require services not provided by HDGH are referred to other centres in the province of Ontario or in the United States (HDGH is minutes from two U.S. border crossings).
Sadler, 2008	Opinion Piece Theme: An intervention used to avoid hospital readmission. The concept of a 'virtual ward' health care team.	This paper discusses the concept of an "In-home" virtual ward for patients with a high risk of readmission. The use of a community based virtual ward to support patients after discharged from acute care. A community matron is proposed to lead and co-ordinate multidisciplinary care, in order to eliminate patient confusion and create continuity of care processes. A computer-generated scoring system identities people at high risk of unplanned hospital admission, allowing community staff to intervene early and provide necessary care.
Shepperd, Doll, Angus, Clarke, Iliffe, Kalra, Ricauda and	Systematic Literature Review Theme: Admission avoidance at home	The review is concerned with admission avoidance hospital at home - this is a service that provides active treatment by health care professionals in the patient's home for a condition that otherwise would require acute hospital in-patient care, and always for a limited time period. In particular, hospital at home has to offer a specific service to patients in their home requiring health care professionals to take an active part in the patients' care. If

Table 39: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Wilson, 2008		hospital at home were not available then the patient would be admitted to an acute hospital ward. Many countries are adopting this type of care in an attempt to reduce the demand for acute hospital admission. The objectives of this review is to determine, in the context of a systematic review and meta analysis, the effectiveness and cost of managing patients with admission avoidance hospital at home compared with in-patient hospital care.
Steffens, Jaeger, Herrmann, Thomas, Barker and Eggleston, 2009	Opinion Piece Theme: Readmissions and impact of poor discharge processes.	This paper is a discussion on not only hospital readmissions as quality of care indicators but also as a pay-for-performance factor. The authors discuss hospital readmission and looks at why readmission rate was added as a reportable indicator in the hospital quality performance measures. Bed available is discussed as also influential on readmission rates. Hospital readmission within 30 days of discharge is gaining momentum as a reportable quality indicator with pay-for-performance implications. Recent economic events and a strained national budget are driving interest in readmissions as a potentially avoidable expenditure. The root cause of readmission has long been debated. Quality oversight organisations have suggested that the cause is less-than-optimum planning and execution of care; healthcare providers have maintained that it is caused by sicker unstable patients, noncompliance, or social issues. The first few paragraphs of this paper are of interest.
Bisognano and Boutwell, 2009	Review Theme: Continuity of care and readmissions	This paper discusses that delivering high quality healthcare requires crucial contributions from many parts of the care continuum. However, as healthcare becomes increasingly specialised, coordination between providers and between settings is too often not conducted as a team effort. In the hospital setting, poor coordination of care often results in hospital readmissions, many of which are avoidable. In this article, we describe processes that hospitals can implement immediately to dramatically improve care transitions and reduce re-hospitalisation rates. Readmission rates are a focus of interest for payers and policymakers seeking to promote efficiency and quality. The main discussion is on how continuity of care can have a reduction on health care costs leading to readmission.

Table 40: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 5 Evidence		
Author(s)	**Type: Report**	**Commentary**
Cowie, 2010	Commentary Theme: admission avoidance	This paper is commentary on Tibaldi *et al*, 2009. Hospital at home for elderly patients with acute decompensation of chronic heart failure: a prospective randomised controlled trial. The author comments on the promising results from the RCT and the need for confirmation by larger trials in order to become part of a range of services that can be made available for patients in the future. While positive comments are made towards the hospital in the home scheme, the author additionally comments that consideration of the informal contribution by family members needs to be present

Table 40: Current Practices, Interventions, Critical Success Factors and Effectiveness; - Category 5 Evidence		
Author(s)	**Type: Report**	**Commentary**
		when calculating costs benefits.
Crombie, Ham, Masman and Mills, 2008	Case Study Theme: Capacity Planning	This paper discusses the National Transition Care Program within Australia, 2004-2005. The program is designed to assist elderly patients who have completed a stay in hospital to move from the hospital to their homes or other suitable accommodation. In planning for transition care services, managers are faced with the question, "How many places should be allocated to transition care in our facility?" This case study offers an approach to this question based on queuing theory.

5.6.3 Admission - Evidence Gaps Tables

Table 41: Evidence Gaps - Category 1 Evidence

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Lepaux, 2001	Mixed Methods Cohort Study	This mixed methods study was a quality improvement program targeted at admission process and expertise of project team members. The objective of the study was to see if a theoretical improvement plan could be realised. A 20-month quality improvement project was undertaken in order to improve the patient admission process at a 350-bed French public psychiatric hospital. In addition to improving the quality of patient admissions, the project was expected to increase the expertise of quality improvement team members. The project team consisted of two physicians, three heads of nursing, one senior manager, one member of the admissions staff and one secretary. A pharmacist acted as internal facilitator. The team used problem-solving methodology to identify and correct any shortcomings in the existing admission process.	The study found through the implementation of the project, the desired improvement measures were achieved within the admissions area. Long-planned admissions had the most improvement for admission without delay (0% to 100%0 as did those patients who admissions were no pre-arranged but foreseen (0% to 45%). Results of the study also showed that the expertise of the team members improved within the tested areas of meeting customer's needs and expectations, contribution of the team to the internal quality improvement strategy, and the understanding of the methodology. Additionally an improvement to the adherence of the mission statement was also an observed result. This study concluded that theoretical components within the research of the paper can be put into action in order to create the desired quality improvement change.	Theme: Legal and ethical aspects Country: France The study limitations need to be taken into consideration - the captured patient population was a low percentage of overall patient traffic. The study does not address the pre-admission events, in order to understand the admission to hospital. The paper was largely concerned with commentary for internal hospital but additionally described internal process improvement.

Table 41: Evidence Gaps - Category 1 Evidence

Author(s)	Study Type	Intervention, Approach	Outcomes, Recommendations	Comments
Overhage, Dexter, Perkins, Cordell, McGoff, McGrath, McDonald and Clement, 2002	Quantitative Analysis through SAS, Cary, NC. Queries using CARE language was constructed in order to extract what test results were available at time of encounter. RCT	This paper describes a randomised controlled trial observing the impact of computerised clinical information sharing between hospitals and two external ED. Within this study participants were randomised into an intervention group where the information from the ED visit was provided to their physician from the computer-based patient record system or into their control group where no information provided was provided. The intervention information was provided to the emergency physician both as a printed abstract and by means of online access to the computer-based patient record. Within this RCT study charges, hospital admissions, repeat visits to EDs, and the emergency physicians' satisfaction with the information were assessed.	The results of this randomised controlled trial showed that under certain assumptions, the intervention was estimated to decrease charges for ED care by approximately $26 per encounter (P=.03) at 1 hospital, but there was no effect on charges at the other hospital. The study concluded that this result was likely because of marked differences in the workflows and information access at these 2 EDs. The results additionally showed there were no differences in admission rates or repeat visits to the ED within this study. The participating emergency physicians identified that remembering their passwords and the time required to search for the information were significant barriers to accessing clinical information online. The study also illustrated a trend toward cost savings at 1 of 2 hospitals and no differences in the quality measures was observed.	Theme: Cost effectiveness Country: United States The study was concerned with costs saving and no difference in quality was measured.

Table 42: Evidence Gaps - Category 2 Evidence

Author(s)	Study Type	Outcomes	Comments
Dennison, Eisen, Towers and Clark, 2006	Prospective Cohort Study	This paper discusses the electronic booking of out-patient appointments is being rolled out in England under the ‘Choose and Book’ programme. This paper assesses the effect of the electronic surgical booking service on	Theme: Electronic admission Country: Britian

Table 42: Evidence Gaps - Category 2 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
		patient waiting times and attendance rates. The study included 54 patients referred electronically and 189 referred on paper to a single colorectal surgical service over the same period. The results of the study showed the appointment booking was achieved on the same day as the referral was made for the majority of electronic referrals whereas it took an average of 7 days for paper referrals. Additionally there was no significant difference in the time from referral to being seen in clinic between the two groups. This study concluded that patients referred electronically were much more likely to attend for their appointment.	This paper demonstrates the benefits of the use of an electronic referral booking system.

Table 43: Evidence Gaps - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Andrews-Hall, Howe and Robinson, 2007	Retrospective Audit Application of the new policy toward retrospective data - quantitative time series analysis.	The aims of this paper were to analyse changes in dependency of residents in residential aged care homes consequent upon the passing of the Commonwealth Aged Care Act in late 1997, and to establish the extent of resultant changes in the dynamics of residential aged care. The paper outlines the major changes brought by the Aged Care Act, and evidence for the effects of these changes is examined to test the hypothesis that changes in dependency generated changes in turnover and length of stay. The findings within this study show that the proportion of admissions classified at higher categories of the Resident Classification Scale has increased over time, and that the trend to higher classification is even more pronounced by the time residents separate. Additionally, as funding of residential aged care is based on resident dependency, the paper illustrates that the change in dependency and in the dynamics of the aged care system have potentially significant consequences for Commonwealth funding of providers to ensure care can be provided commensurate with resident needs.	Theme: Admission trends Country: Australia This paper is concerned with admissions to RACF. This is a paper that is not concerned with hospital admissions, moving away from hospital centric focus. The discussion within the paper is around higher dependency patients within RACF. This paper also talks about discharge from RACF but the most common cause of separation is death. There is a suggestion of a reduction of low care admissions due to ageing in place.

Table 43: Evidence Gaps - Category 3 Evidence			
Author(s)	**Study Type**	**Outcomes**	**Comments**
Ong, Fernandes, Cesta and Bajcar, 2006	Quantitative Analysis Prospective Cohort Study	This paper discusses drug related problems on admission in patients with end stage renal disease (ESRD); the study within the paper relates problems to poor communication about medications. The results of this study demonstrate that ESRD patients have drug related problems at admission that are frequently related to gaps in medication information transfer between healthcare professionals and between the healthcare providers and patients.	Theme: Medication communication Country: Canada This is a disease specific study. However it is interesting as it's looking at information within medication transfer and patients with multi admissions and identified the multiple information transitions. This is one of the few papers that look at medication and information transfer and admissions, even through disease specific.

Table 44: Evidence Gaps - Category 4 Evidence		
Author(s)	**Type: Opinions, Reviews**	**Commentary**
Allder, Silvester and Walley, 2010	Review of Evidence Theme: Bed availability bottleneck solutions	This paper reviews the evidence for the hypothesis that bed availability problems can be solved by actions other than the addition of more beds to the system. Bed availability remains the main operational focus for managers and clinicians on a day-to-day basis within the NHS. This paper identifies published research that establishes a lack of bed stock is too simplistic an explanation of the situation. Other reasons this review identifies for bed shortage include the daily and weekly lack of synchronisation of admissions and discharges, the large variation in bed occupancy over time, the downtime during weekends and holiday periods, wasted time during inpatient stays and the variation in patient length of stay.
Arendts and Howard, 2010	Literature Review Theme: Cost effectiveness between ED and RACF	This review discusses that emergency care for older people living in residential aged care facilities (RACF) is a complex area of health policy. The paper identifies the epidemiology of patient transfer between RACF and hospital emergency departments (ED), clinical outcomes and costs associated with transfer and efficacy of programs aiming to reduce transfer are not well known. The review concludes that residents of RACF have a high annual risk of transfer to ED. The clinical benefit and cost effectiveness of ED care, and alternate programs to reduce ED transfer, cannot be confidently compared from published work. The authors conclude that further research is required to accurately describe these and to determine their comparative worth.

Table 45: Evidence Gaps - Category 5 Evidence		
Author(s)	**Type: Report**	**Commentary**
		No specific Category 5 evidence was found relating to Evidence Gaps in Admission.

6. Part 4: CONTINUITY OF CARE PERSPECTIVES

The primary purpose of this document has been to present three free-standing structured evidence based literature reviews on discharge, referral and admission respectively. This stated, the eHealth Services Research Group (eHSRG) has been conscious throughout the conduct of these reviews that their specific requirements have imposed an artificial separation between the processes of discharge, referral and admission that is not replicated in practice. As has been evidenced in some of the literature reviewed in each of the three sections above, there are inter-relationships between these three processes that need to be addressed to ensure quality and safety improvement. Discharge of a patient by one care provider regularly results in admission by another, and these complementary activities are frequently accompanied by some form of referral. Ensuring safe and high quality patient care across multiple settings means that these processes should, wherever possible, not be treated in isolation.

As a consequence, the approach utilised in conducting these reviews has deliberately prioritised literature focused on processes, tools and techniques as well as experiences and insights related to the transfer of patients, information about them and/or their care from individual or teams of health professionals in one setting to those in another health organisation or setting (i.e. inter-organisational processes rather than just intra-organisational processes).

6.1. Introduction:

Here Part 4 aims to further support these considerations by briefly adopting an integrated continuity of care perspective. This perspective aims to summarise some of the important broader issues and challenges that have tended to be marginalised, excluded or ignored by the evidence-based literature specifically focused on discharge, referral or admission processes. This part has been included to specifically draw attention to the need for more holistic approaches to the theory and practice of discharge, referral and admission as part of health care safety and quality process improvement.

This part aims to deliberately counter the strong 'hospital-centric' focus evident in all three of the reviews presented above and the tendency dominant in the vast majority of the literature reviewed to treat discharge, referral and admission as singular standalone events, rather than as processes requiring on-going care and communication.

It can be argued that this tendency, which is evident in the majority of the literature, is a quality and safety risk in itself because it inhibits integrated and holistic approaches to the transfer, treatment and care of patients. Related to this argument is the perspective that the evidence of challenges in communication and information transfer about patients and their treatment and care is often more to do with professional, organisational, structural or financial factors than any failure in individual health professional commitment to the safe delivery of health care services.

Indeed it can be further argued that given these factors, it is only because of the commitment of the vast majority of health care professionals to deliver high quality and safe care that the current levels of service are being maintained.

6.2 Maintaining a focus on Integrated Care

> *"The challenge of patient safety is not only clinical, but also organisational. To succeed, patient safety initiatives must be designed and executed using change management principles such as congruent changes targeting multiple components, specific change management roles for different participants in the care-delivery process, implementation through dedicated support structures and multiple tactics, and institutionalisation through enhanced workforce capabilities and opportunities for continuous learning." (Ramanujam et al, 2005).*

Contemporary health care services have become increasingly complex and specialised such that the care of patients frequently involves a variety of healthcare professionals working within and between a number of health care provider organisations. Unsurprisingly this approach has led to a dramatic increase in the numbers of 'handovers' of patients and/or information and care about them both within and between health professionals and health provider organisations.

In one sense, these processes of transfer have led to a degree of separation between the individual patient and their health practitioners. While on the one hand, this has generally led to a much higher quality of diagnosis, treatment and care, on the other, it has also introduced system vulnerabilities that can lead to patients becoming disconnected from information and communication about them and their treatment and care. This disconnection is, at least partly evidenced by some of the reported information and communication failures, medication errors, unnecessary repetition or delays in diagnosis and treatment and medical tests, patient mis-identification and range of adverse events reported in the literature above.

These three literature reviews reveal that transitions of patient care between organisations can occur in a number of contexts, including: into and out of admitted (overnight) care, general practice, community care, residential aged care, and non-admitted hospital care (such as emergency departments and clinics). It is clear however that these transitions do not reveal the full complexity of the movement of patients, information about them and the treatment and/or care processes they may or may not receive as they transition through the healthcare system between multiple care providers and provider facilities.

Again, this is at least partly evidenced by the fact that the outcomes of these transitions for patients may often have as much to do with the current health status of the patient as they do with any inherent quality in the transition processes themselves. For example, for non-acute patients, poor communication between providers at the time of patient transition between settings often creates minimal risk and/or goes on unnoticed. For patients with acute illness requiring ongoing care, and/or for patients with multiple complex chronic conditions effective communication between providers is essential for the maintenance of safety in the care delivered. Similar remarks can be made about the costs of these transitions, and for the overall costs of care, inasmuch as where these transitions are well-coordinated and well-managed there is the potential for more efficient, effective and safer health care delivery. On the other hand, poor transitions present a high risk of adverse events, medication errors and avoidable re-admissions, delayed referrals or failed discharge.

In conducting this review it has been salutary to note, not only the significant differences that exist in the management, administration and funding of healthcare services within and between different countries, medical jurisdictions and professions but also how these differences inhibit the easy transfer of findings on discharge, referral and admission processes. Throughout the eHSRG team has attempted to identify these issues where they exist, and to take them into account in evaluation of the evidence.

More significantly while much of the research and evidence identified in these literature reviews provides new insights into the safe management of patient transitions, there are also many recurrent themes that have been identified in literature pre-dating the current reviews covering the last 10 years. These recurrent themes whilst having been recognised for decades in some cases appear to mostly have remained unresolved, particularly within the context of hospital care and the aligned risks to safety are evidenced by these reviews as continuing as a result.

By adopting a continuity of care perspective a number of key issues relating to these concerns can be identified:

- The importance for health professionals and health provider organisations to recognise that admission, referral and discharge should not be treated merely as singular 'one-off' events in the delivery of patient care. Rather they should be acknowledged as processes that extend beyond the conventional boundaries of any particular health organisation, individual clinic or ward and thus require a conscious

effort to ensure that accurate, legible and relevant information is exchanged with the next health provider and where possible the patient/carer to enhance the quality and safety of treatment and care delivered.

- Health professionals and health provider organisations need support to facilitate the change management of internal processes so that they are capable of producing and distributing accurate, legible and relevant information beyond their conventional disciplinary and organisational boundaries. Related to this is the need to ensure that when information is sent or received health professionals take on the responsibility to verify, validate, confirm receipt, communicate and act upon it as appropriate to optimize the safety and quality of care.
- It is acknowledged that the literature provides very limited evidence and/or guidance on the necessary educational and training content and processes required to support health professionals to be able to enhance the quality and safety of admission, referral and discharge processes. This is an area that will require additional effort by health provider organisations and applied research by health agencies, universities and research institutes.
- eHealth continues to hold considerable promise and there is some evidence to indicate its strong potential to support integrated care, and support the patient and information transfers that occur during admission, referral and discharge. However eHealth systems also raise numerous sociotechnical, clinical and legal challenges that are apparent within the literature in cases where these solutions meet with mixed success, or fail to generate their anticipated benefits. Critically, these tools must be seen as mechanisms to support, not replace good admission, referral and discharge communication and patient safety must be an embedded property of the entire system (Harrison et al, 2007).
- Assuring the accuracy of medications during transitions of care and ensuring clear, legible communication of current and changed medications emerges as a significant safety risk in all three of the reviews above. It is also evident that there is a tendency in the literature to ignore or marginalize the potential to positively engage with patients to educate them on their medications and involve them directly in the processes of medication management as part of strategies to mitigate this risk.
- As real progress is made to engage with and involve patients as co-participants in the management of their own care a key issue that needs to be addressed (if further risk factors are not to arise), is the challenge of improving health literacy. A basic level of health literacy is at the core of the health system being able to meaningfully engage patients/carers in their own care. In particular, for patients with complex conditions there appears to be a strong case for the development of a comprehensive approach to this issue.
- Chronic disease management and self-management are increasingly challenging the dominant ‘hospital-centric’ view of health care that continues to position hospitals as the mainstay of the system as whole. Patients living independently for longer in the community, particularly those suffering complex and/or chronic conditions, deserve significant improvements in communication across the primary – acute care boundary as evidenced by the literature on discharge, referral and admission above. This re-design can only occur if there is recognition of the need to improve communication, not just between health care providers but also between health professionals and patients.
- Patient-centred approaches need to move beyond lip service to the idea, and into establishing ways to respond that are tailored to the acuity, age, educational, cultural and linguistic backgrounds of the patient/carer. Communication emerges as a key to enable patients to know their health and their health issues, their medications, to engage in disease management and to participate in mitigating some of the risks that arise during admission, referral and discharge.
- In developing responses that can improve the admission, referral and discharge processes there is a need for ‘flexible standardisation‘ that can provide a consistent

over-arching framework that maintains flexibility for individual responses tailored to the needs of particular patients. This approach underlines the central tension between standardisation and customisation within health care - in many respects safety and quality is underpinned by the need for a coherency and standardisation while at the same allowing for individual variety and the exceptions case that can only be handled by maintaining a degree of autonomy in clinical decision-making.

7. BIBLIOGRAPHY

This bibliography is divided into four distinct sections, sections 7.1-7.3 relate to the literature examined within each of the three separate reviews. Within these sections all publications that are in bold have been formally analysed within the body of this report.

Section 7.4 contains references for literature referred to within the body of the text, but outside that contained within the three specific reviews.

7.1. Discharge

Abernathy, C. A. and Ramsey, J. E. (1997) The hospital evolution to discharge planning automation. NAHAM Manage J, 24, 3-5.

Adhiyaman, V., Oke, A., White, A. D. and Shah, I. U. (2000) Diagnoses in discharge communications: how far are they reliable? Int J Clin Pract, 54, 457-8.

Adnan, M., Warren, J. and Orr, M. (2008) Using Wikis for Creating Discharge Summaries. IN GRAIN, H. (Ed. HIC 2008 Australia's Health Informatics Conference. Melbourne, Health Informatics Society of Australia Ltd (HISA).

Alberti, V. and Flor, L. (1992) [The quality of the data on hospital discharge]. Epidemiol Prev, 14, 32-8.

Alderton, M. and Callen, J. (2007) Are general practitioners satisfied with electronic discharge summaries? HIM J, 36, 7-12.

Ama (2009) Care transitions performance measurement set (phase I: inpatient discharges and emergency department discharges. Chicago, American Medical Association;.

Anand, P., Stephanie, S. T. and Manish, G. (2004) The electronic immediate discharge document: experience from the South West of Scotland. Informatics in Primary Care, 12, 67-73.

Anderson, M. A. and Helms, L. (1993) An assessment of discharge planning models: communication in referrals for home care. Orthop Nurs, 12, 41-9.

Anderson, M. A. and Helms, L. B. (2000) Talking about patients: communication and continuity of care. J Cardiovasc Nurs, 14, 15-28.

Anonymous (1997) Automated discharge summary enhances communication. Hosp Peer Rev, 22, 7-8.

Anonymous (2000) Hospital discharge planning. Part II: How to ensure continuity of nutrition care. Health Care Food Nutr Focus, 17, 1, 3-7.

Anonymous (2001) Inadequate transmission of patient information across a continuum of care environments precedes a fatal outcome. Int J Qual Health Care, 13, 423-4.

Anonymous (2002) Discharge process enables faster placement. Hosp Peer Rev, 27, 51-3.

Anonymous (2010) Frustrations with hospitalist care: need to improve transitions and communication. Ann Intern Med, 152, 469.

Apker, J., Mallak, L. A. and Gibson, S. C. (2007) Communicating in the "Gray Zone": Perceptions about Emergency Physician - Hospitalist Handoffs and Patient Safety. Academic Emergency Medicine, 14, 884-894.

Arad, I., Netzer, D. and Haramati, Z. (2007) The impact of nurses and mothers signing the discharge letter on maternal knowledge and satisfaction after discharge from a neonatal unit: a before and after study. Int J Nurs Stud, 44, 1102-8.

Archie, R. R. and Boren, S. A. (2009) Opportunities for informatics to improve discharge planning: a systematic review of the literature. AMIA Annu Symp Proc, 2009, 16-20.

Arendts, G., Dickson, C., Howard, K. and Quine, S. (2010) Transfer from residential aged care to emergency departments: an analysis of patient outcomes. Internal Medicine Journal, 18 Mar.

Arling, G., Williams, A. R. and Kopp, D. (2000) Therapy use and discharge outcomes for elderly nursing home residents. Gerontologist, 40, 587-95.

Arora, V. M., Prochaska, M. L., Farnan, J. M., D'arcy, V. M., Schwanz, K. J., Vinci, L. M., Davis, A. M., Meltzer, D. O. and Johnson, J. K. (2010) Problems after discharge and understanding of communication with their primary care physicians (PCPs) among hospitalized seniors: A mixed methods study. J Hosp Med.

Ash, J. S., Berg, M. and Coiera, E. (2004) Some unintended consequences of information technology in health care: the nature of patient care information system-related errors. Journal of the American Medical Informatics Association, 11, 104-112.

Atherton, H., Car, J. and Meyer, B. (2009a) Email for clinical communication between patients/caregivers and healthcare professionals. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Atherton, H., Car, J. and Meyer, B. (2009b) Email for the management of healthcare appointments and attendance reminders. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Atherton, H., Car, J. and Meyer, B. (2009c) Email for the provision of information on disease prevention and health promotion. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Atherton, H., Car, J., Meyer, B. and Majeed, A. (2009d) Email for clinical communication between healthcare professionals. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Atwal, A. (2002) Nurses' perceptions of discharge planning in acute health care: a case study in one British teaching hospital. Journal of Advanced Nursing, 39, 450-458.

Audi, C. A., Correa, A. M., Latorre, M. R. and Perez-Escamilla, R. (2005) Factors associated with infant feeding practices after hospital discharge. Rev Saude Publica, 39, 406-12.

Auslander, G. K., Soskolne, V., Stanger, V., Ben-Shahar, I. and Kaplan, G. (2008) Discharge planning in acute care hospitals in Israel: services planned and levels of implementation and adequacy. Health Soc Work, 33, 178-88.

Avillach, P., Joubert, M. and Fieschi, M. (2008) Improving the quality of the coding of primary diagnosis in standardized discharge summaries. Health Care Manag Sci, 11, 147-51.

Baker, D. W., Einstadter, D., Husak, S. S. and Cebul, R. D. (2004a) Trends in Postdischarge Mortality and Readmissions: Has Length of Stay Declined Too Far? Arch Intern Med, 164, 538-544.

Baker, G. R. and Norton, P. (2001) A Systematic Review and Analysis of Leading Practices in Canada with Reference to Key Initiatives Elsewhere. Patient Safety and Helathcare Error in the Canadian Healthcare System.

Baker, G. R., Norton, P. G., Flintoft, V., Blais, R., Brown, A., Cox, J., Etchells, E., Ghali, W. A., Hebert, P., Majumdar, S. R., O'beirne, M., Palacios-Derflingher, L., Reid, R. J., Sheps, S. and Tamblyn, R. (2004b) The Canadian Adverse Events Study: the incidence of adverse events among hospital patients in Canada. CMAJ, 170, 1678-1686.

Balaban, R. B., Weissman, J. S., Samuel, P. A. and Woolhandler, S. (2008) Redefining and redesigning hospital discharge to enhance patient care: A randomized controlled study. Journal of General Internal Medicine, 23, 1228-1233.

Balla, J. I. and Jamieson, W. E. (1994) Improving the continuity of care between general practitioners and public hospitals. Med J Aust, 161, 656-9.

Banerjee, A. (1993) Surgical discharge summaries: improving the record. Ann R Coll Surg Engl, 75, 302.

Barnsteiner, J. H. (2005) Medication Reconciliation: Transfer of medication information across settings-keeping it free from error. AJN The American Journal of Nursing, 105, 31-36.

Bartek, W. V. (1988) Good discharge planning key to quality care. Tex Hosp, 44, 30-1.

Bates, D. (2010) Getting in Step: Electronic Health Records and their Role in Care Coordination. Journal of General Internal Medicine, 25, 174-176.

Baumann, M., Evans, S., Perkins, M., Curtis, L., Netten, A., Fernandez, J. L. and Huxley, P. (2007) Organisation and features of hospital, intermediate care and social services in English sites with low rates of delayed discharge. Health Soc Care Community, 15, 295-305.

Beal, A. C., Doty, M. M., Hernandez, S. E., Shea, K. K. and Davis, K. (2007) Closing the Divide: How Medical Homes Promote Equity in Health Care—Results from The Commonwealth Fund 2006 Health Care Quality Survey. The Commonwealth Fund, 62.

Beers, M. H., Sliwkowski, J. and Brooks, J. (1992a) Compliance with medication orders among the elderly after hospital discharge. Hosp Formul, 27, 720-4.

Beers, M. H., Sliwkowski, J. and Brooks, J. (1992b) Compliance with medication orders among the elderly after hospital discharge. Hospital Formulary, 27, 720-724.

Bell, C. M., Schnipper, J. L., Auerbach, A. D., Kaboli, P. J., Wetterneck, T. B., Gonzales, D. V., Arora, V. M., Zhang, J. X. and Meltzer, D. O. (2009) Association of communication between hospital-based physicians and primary care providers with patient outcomes. J Gen Intern Med, 24, 381-6.

Bellika, J. G., Hartvigsen, G. and Norum, J. (2003) Using discharge letters and context representation in information retrieval of medical literature. Stud Health Technol Inform, 95, 373-8.

Bergkvist, A., Midlov, P., Hoglund, P., Larsson, L., Bondesson, A. and Eriksson, T. (2009) Improved quality in the hospital discharge summary reduces medication errors--LIMM: Landskrona Integrated Medicines Management. Eur J Clin Pharmacol, 65, 1037-46.

Billings, D. and Kowalski, K. (2008) Transition From Hospital to Home Care: What Gets Lost Between the Discharge Plan and the Real World? The Journal of Continuing Education in Nursing, 39, 198-9.

Bodenheimer, T. (2007) Coordinating care: a major (unreimbursed) task of primary care. Ann Intern Med, 147, 730-1.

Bolton, P. (1999) A review of the role of information technology in discharge communications in Australia. Aust Health Rev, 22, 56-64.

Bolton, P. (2001) A quality assurance activity to improve discharge communication with general practice. J Qual Clin Pract, 21, 69-70.

Bolton, P., Mira, M., Kennedy, P. and Lahra, M. M. (1998) The quality of communication between hospitals and general practitioners: an assessment. J Qual Clin Pract, 18, 241-7.

Boockvar, K., Fishman, E., Kyriacou, C. K., Monias, A., Gavi, S. and Cortes, T. (2004) Adverse Events Due to Discontinuations in Drug Use and Dose Changes in Patients Transferred Between Acute and Long-term Care Facilities. Arch Intern Med, 164, 545-550.

Boockvar, K. S., Halm, E. A., Litke, A., Silberzweig, S. B., Mclaughlin, M., Penrod, J. D., Magaziner, J., Koval, K., Strauss, E. and Siu, A. L. (2003) Hospital Readmissions After Hospital Discharge for Hip Fracture: Surgical and Nonsurgical Causes and Effect on Outcomes. Journal of the American Geriatrics Society, 51, 399-403.

Boockvar, K. S., Liu, S., Goldstein, N., Nebeker, J., Siu, A. and Fried, T. (2009) Prescribing discrepancies likely to cause adverse drug events after patient transfer. Quality and Safety in Health Care, 18, 32-36.

Booij, A. D., De Boer, W. O., Kokenberg, M. E. A. P. and Tromp, T. F. J. (2003) Interventions in seamless care. Pharmacy World and Science, 25, 41-42.

Booth, A. O. (1996) Using a computer-linked fax in patient discharge. Prof Nurse, 11, 764-6.

Bowles, K. H., Foust, J. B. and Naylor, M. D. (2003) Hospital discharge referral decision making: a multidisciplinary perspective. Appl Nurs Res, 16, 134-43.

Bowles, K. H., Naylor, M. D. and Foust, J. B. (2002a) Patient characteristics at hospital discharge and a comparison of home care referral decisions. J Am Geriatr Soc, 50, 336-42.

Bowles, K. H., Naylor, M. D. and Foust, J. B. (2002b) Patient characteristics at hospital discharge and a comparison of home care referral decisions. Journal of the American Geriatrics Society, 50, 336-342.

Briggs, B. (2005). Web portal speeds discharge process. Health Data Management, 13(2), 126, 128

Bristow, D. P. and Herrick, C. A. (2002) Emergency department case management: the dyad team of nurse case manager and social worker improve discharge planning and patient and staff satisfaction while decreasing inappropriate admissions and costs: a literature review (Brief record). Lippincott's Case Management: Managing the Process of Patient Care.

Brook, M., Hilty, D. M., Liu, W., Hu, R. and Frye, M. A. (2006) Discharge against medical advice from inpatient psychiatric treatment: a literature review. Psychiatr Serv, 57, 1192-8.

Brown, M. C. and Censullo, M. (2008) Supporting Safe Transitions From Home to Healthcare Settings for Individuals With Intellectual Disabilities. Topics in Geriatric Rehabilitation, 24, 74-82 10.1097/01.TGR.0000311408.47296.6c.

Broyles, R. W., Chou, A. F., Mattachione, S. E. and Al-Assaf, A. F. (2010) Adverse medical events: do they influence discharge decisions? Hosp Top, 88, 18-25.

Budnitz, D. S., Pollock, D. A., Weidenbach, K. N., Mendelsohn, A. B., Schroeder, T. J. and Annest, J. L. (2006) National Surveillance of Emergency Department Visits for Outpatient Adverse Drug Events. Jama, 296, 1858-1866.

Bull, M. J., Hansen, H. E. and Gross, C. R. (2000) Predictors of Elder and Family Caregiver Satisfaction with Discharge Planning. Journal of Cardiovascular Nursing, 14, 76-87.

Bull, M. J. and Roberts, J. (2001) Components of a proper hospital discharge for elders. Journal of Advanced Nursing, 35, 571-581.

Burge, B. and Rutherford, A. (2001) General practitioners and hospitals: continuity of care. Australian Family Physician, 30, 1101-7.

Cabana, M. D. and Jee, S. H. (2004) Does continuity of care improve patient outcomes. J Fam Pract, 53, 974-980.

Callen, J., Mcintosh, J. and Li, J. (2009) Accuracy of medication documentation in hospital discharge summaries: A retrospective analysis of medication transcription errors in manual and electronic discharge summaries. Int J Med Inform, 79, 58-64.

Callen, J. L., Alderton, M. and Mcintosh, J. (2008) Evaluation of electronic discharge summaries: a comparison of documentation in electronic and handwritten discharge summaries. Int J Med Inform, 77, 613-20.

Cameron, B. (1994) The impact of pharmacy discharge planning on continuity of care. Can J Hosp Pharm, 47, 101-9.

Canadian Coordinating Office for Health Technology, A. (2002) Early newborn discharge (Brief record). Ottawa: Canadian Coordinating Office for Health Technology Assessment (CCOHTA). Canadian Coordinating Office for Health Technology Assessment (CCOHTA).

Capelastegui, A., Espana Yandiola, P. P., Quintana, J. M., Bilbao, A., Diez, R., Pascual, S., Pulido, E. and Egurrola, M. (2009) Predictors of short-term rehospitalization following discharge of patients hospitalized with community-acquired pneumonia. Chest, 136, 1079-85.

Car, J., Black, A., Anandan, C., Cresswell, K., Pagliari, C., Mckinstry, B., Procter, R., Majeed, A. and Sheikh, A. (2008) The impact of eHealth on the quality and safety of healthcare: a systematic overview and synthesis of the literature. Report for the NHS Connecting for Health Evaluation Programme.

Car, J. and Sheikh, A. (2004a) Email consultations in health care: 1--scope and effectiveness. BMJ, 329, 435-438.

Car, J. and Sheikh, A. (2004b) Email consultations in health care: 2--acceptability and safe application. BMJ, 329, 439-442.

Carey, J. S., Parker, J. P., Robertson, J. M., Misbach, G. A. and Fisher, A. L. (2003) Hospital discharge to other healthcare facilities: impact on in-hospital mortality. J Am Coll Surg, 197, 806-12.

Caroll, V. (2007) The Adult Patient Assessment Tool. Australian Nursing Journal, 14, 29-31.

Catalano, K. (2009) Hand-off communication does affect patient safety. Plast Surg Nurs, 29, 266-70.

Chaboyer, W., Foster, M., Kendall, E. and James, H. (2002) ICU nurses' perceptions of discharge planning: a preliminary study. Intensive and Critical Care Nursing, 18, 90-95.

Chaboyer, W., Foster, M., Kendall, E. and James, H. (2004) The impact of a liaison nurse on ICU nurses' perceptions of discharge planning. Australian Critical Care, 17, 25-32.

Chan, K. E., Lazarus, J. M., Wingard, R. L. and Hakim, R. M. (2009) Association between repeat hospitalization and early intervention in dialysis patients following hospital discharge. Kidney Int, 76, 331-341.

Chandrashekar, N. K. (2010) Patient and physician perceptions after software-assisted hospital discharge: Cluster randomized trial. Journal of Hospital Medicine, 5, E1.

Chaudhry, B., Wang, J., Wu, S., Maglione, M., Mojica, W., Roth, E., Morton, S. C. and Shekelle, P. G. (2006) Systematic Review: Impact of Health Information Technology on Quality, Efficiency, and Costs of Medical Care. Annals of Internal Medicine, 144, 742-752.

Chen, Y., Brennan, N. and Magrabi, F. (2010) Is email an effective method for hospital discharge communication? A randomized controlled trial to examine delivery of computer-generated discharge summaries by email, fax, post and patient hand delivery. Int J Med Inform, 79, 167-72.

Cheng, L. and Parle, J. (1993) Surgical discharge summaries : improving the record. nnals of The Royal College of Surgeons of England, 75, 302.

Chhanabhai, P., Holt, A. and Hunter, I. (2006) Consumers, Security and Electronic Health Records. University of Otago.

Chiu, W. K. and Newcomer, R. (2007) A systematic review of nurse-assisted case management to improve hospital discharge transition outcomes for the elderly (Structured abstract). Professional Case Management.

Chow, K. M. and Szeto, C. C. (2006) Secular trends in the medical discharge summary in an acute medical hospital. Postgraduate Medical Journal, 82, 615-618.

Christensen, K. A., Mainz, J. and Kristensen, E. (1997) [Communication between primary and secondary sector and its significance for patient care. Evaluation based on admission records and discharge letters of patients admitted acutely to a department of internal medicine]. Ugeskr Laeger, 159, 7141-5.

Clancy, C. M. (2009) Reengineering hospital discharge: a protocol to improve patient safety, reduce costs, and boost patient satisfaction. Am J Med Qual, 24, 344-6.

Clare, C. (2006) Do public access defibrillation (PAD) programmes lead to an increase of patients surviving to discharge from hospital following out of hospital cardiac arrest: a literature review (Provisional abstract). International Journal of Nursing Studies.

Clark, P. (2004) Medication Errors in Family Practice, in Hospitals and after Discharge from the Hospital: An Ethical Analysis. Journal of Law, Medicine and Ethics, 3.

Clark, P. A., Drain, M., Gesell, S. B., Mylod, D. M., Kaldenberg, D. O. and Hamilton, J. (2005) Patient perceptions of quality in discharge instruction. Patient Education and Counseling, 59, 56-68.

Clever, S. L., Jin, L., Levinson, W. and Meltzer, D. O. (2008) Does Doctor-Patient Communication Affect Patient Satisfaction with Hospital Care? Results of an Analysis with a Novel Instrumental Variable. Health Services Research, 43, 1505-1519.

Closs, S. (1997) Discharge communications between hospital and community health care staff: a selective review. Health and Social Care in the Community, 5, 181-197.

Cole, M. G. (2001) The impact of geriatric post-discharge services on mental state (Structured abstract). Age and Ageing.

Coleman, E. A. and Berenson, R. A. (2004a) Lost in transition: challenges and opportunities for improving the quality of transitional care. Ann Intern Med, 141, 533-6.

Coleman, E. A. and Berenson, R. A. (2004b) Lost in Transition: Challenges and Opportunities for Improving the Quality of Transitional Care. Annals of Internal Medicine, 141, 533-536.

Coleman, E. A., Mahoney, E. and Parry, C. (2005a) Assessing the Quality of Preparation for Posthospital Care from the Patient's Perspective: The Care Transitions Measure. Medical Care March 2005, 43, 246-255.

Coleman, E. A., Min, S.-J., Chomiak, A. and Kramer, A. M. (2004) Posthospital Care Transitions: Patterns, Complications, and Risk Identification. Health Services Research, 39, 1449-1466.

Coleman, E. A., Parry, C., Chalmers, S. and Min, S.-J. (2006) The Care Transitions Intervention: Results of a Randomized Controlled Trial. Arch Intern Med, 166, 1822-1828.

Coleman, E. A., Smith, J. D., Frank, J. C., Eilertsen, T. B., Thiare, J. N. and Kramer, A. M. (2002) Development and testing of a measure designed to assess the quality of care transitions. International journal of integrated care, 2.

Coleman, E. A., Smith, J. D., Raha, D. and Min, S.-J. (2005b) Posthospital Medication Discrepancies: Prevalence and Contributing Factors. Arch Intern Med, 165, 1842-1847.

Coley, K. C., Williams, B. A., Dapos, S. V., Chen, C. and Smith, R. B. (2002) Retrospective evaluation of unanticipated admissions and readmissions after same day surgery and associated costs* 1. Journal of clinical anesthesia, 14, 349-353.

Collins, S. and Sayers, E. (1997) Discharge summaries. Map reading. Health Serv J, 107, 28-9.

Connolly, M., Grimshaw, J., Dodd, M., Cawthorne, J., Hulme, T., Everitt, S., Tierney, S. and Deaton, C. (2009) Systems and people under pressure: the discharge process in an acute hospital. J Clin Nurs, 18, 549-58.

Cook, C., Seifert, K., Hull, B., Hovan, M., Charles, J., Miller-Cage, V., Boyle, M., Harris, J., Magallanez, J. and Littman, S. (2009) Inpatient to Outpatient Transfer of Diabetes Care: Planing for an Effective Hospita Discharge. Endocrine Practice, 15, 263-269.

Cooke, M. W., Arora, P. and Mason, S. (2003) Discharge from triage: modelling the potential in different types of emergency department. Emerg Med J, 20, 131-3.

Cornish, P. L., Knowles, S. R., Marchesano, R., Tam, V., Shadowitz, S., Juurlink, D. N. and Etchells, E. E. (2005a) Unintended Medication Discrepancies at the Time of Hospital Admission. Arch Intern Med, 165, 424-429.

Cornish, P. L., Tam, V. C., Knowles, S. R., Fine, N., Marchesano, R. and Etchells, E. E. (2005b) Frequency, type and clinical importance of medication history errors at admission to hospital: a systematic review. CMAJ, 173, 510-515.

Cotera-Perez-Perez, O. (2005) Discharge planning in acute care and long-term facilities. J Leg Med, 26, 85-94.

Cotton, M. M., Bucknall, C. E., Dagg, K. D., Johnson, M. K., Macgregor, G., Stewart, C. and Stevenson, R. D. (2000) Early discharge for patients with exacerbations of chronic obstructive pulmonary disease: a randomised controlled trial. Thorax, 55:, 902-906.

Coventry University. Coventry Business Schooluniversity of York. Department of Health, S. and Clinical Evaluationuniversity of York. York Health Economics Consortiumplymouth University. Office of the Vice, C. (1998) The rise in emergency admissions project. Executive summary (Structured abstract). Coventry University, Coventry Business School; York. Coventry University, Coventry Business School; York.

Craig, J., Callen, J., Marks, A., Saddik, B. and Bramley, M. (2007) Electronic discharge summaries: the current state of play. HIM J, 36, 30-6.

Crombie, A., Ham, J., Masman, K. and Mills, T. M. (2008) Planning for transition care. Aust Health Rev, 32, 505-8.

Crossan, I., Curtis, D. and Ong, Y.-L. (2004) Audit of psychiatric discharge summaries: completing the cycle. Psychiatric Bulletin, 28, 329-331.

Crotty, M., Whitehead, C. H., Gray, S. and Finucane, P. M. (2002) Early discharge and home rehabilitation after hip fracture achieves functional improvements: a randomized controlled trial. Clinical Rehabilitation, 16, 406-413.

Cua, Y. M. and Kripalani, S. (2008) Medication use in the transition from hospital to home. Ann Acad Med Singapore, 37, 136-6.

Cumbler, E., Carter, J. and Kutner, J. (2008) Failure at the transition of care: challenges in the discharge of the vulnerable elderly patient. J Hosp Med, 3, 349-52.

Cunliffe, A. L., Gladman, J. R. F., Husbands, S. L., Miller, P., Dewey, M. E. and Harwood, R. H. (2004a) Sooner and healthier: a randomised controlled trial and interview study of an early discharge rehabilitation service for older people. Age Ageing, 33, 246-252.

Curran, P., Gilmore, D. H. and Beringer, T. R. (1992) Communication of discharge information for elderly patients in hospital. Ulster Med J, 61, 56-8.

Damiani, G., Pinnarelli, L. and Ricciardi, G. (2006) [Hospital at home: assessment of early discharge in terms of patients mortality and satisfaction]. Ann Ig, 18, 89-96.

Danish Centre for Health Technology, A. (2007) Follow-up home visits at elderly patients after discharge from hospital - a Health Technology Assessment (Brief record). Copenhagen: Danish Centre for Evaluation and Health Technology Assessment (DACEHTA).

Davis, R. E., Jacklin, R., Sevdalis, N. and Vincent, C. A. (2007) Patient involvement in patient safety: what factors influence patient participation and engagement? Health Expect, 10, 259-67.

De Vries, E. N., Ramrattan, M. A., Smorenburg, S. M., Gouma, D. J. and Boermeester, M. A. (2008) The incidence and nature of in-hospital adverse events: a systematic review. Qual Saf Health Care, 17, 216-23.

Delaney, C. P. (2008) Outcome of discharge within 24 to 72 hours after laparoscopic colorectal surgery. Dis Colon Rectum, 51, 181-5.

Delgado-Rodriguez, M., Gomez-Ortega, A., Sillero-Arenas, M. and Llorca, J. (2001) Epidemiology of surgical-site infections diagnosed after hospital discharge: a prospective cohort study. Infect Control Hosp Epidemiol, 22, 24-30.

Demlo, L. K. and Campbell, P. M. (1981) Improving hospital discharge data: lessons from the National Hospital Discharge Survey. Med Care, 19, 1030-40.

Dimond, B. (2005). Electronic health record and electronic patient record. British Journal of Nursing (Mark Allen Publishing), 14(13), 716-717.

Donnelly, M., Power, M., Russell, M. and Fullerton, K. (2004) Randomized controlled trial of an early discharge rehabilitation service: the Belfast community stroke trial (Structured abstract). Stroke.

Dougherty, G. E. (1999) "Conventional" dictated versus database-generated discharge summaries: timeliness, quality and completeness. CMAJ, 160, 345-6.

Dover, S. B. and Low-Beer, T. S. (1986) Study of "discharge communications" from hospital. Br Med J (Clin Res Ed), 293, 1505.

Dovey, S. M., Meyers, D. S., Phillips, R. L., Jr., Green, L. A., Fryer, G. E., Galliher, J. M., Kappus, J. and Grob, P. (2002) A preliminary taxonomy of medical errors in family practice. Qual Saf Health Care, 11, 233-8.

Dudas, V., Bookwalter, T., Kerr, K. M. and Pantilat, S. Z. (2001) The impact of follow-up telephone calls to patients after hospitalization. The American Journal of Medicine, 111, 26-30.

Dunn, A. and Markoff, B. (2009) Physician–Physician Communication: What's the Hang-up? Journal of general internal medicine, 24, 437-439.

Dunnion, M. E. and Kelly, B. (2005) From the emergency department to home. J Clin Nurs, 14, 776-85.

Eisenberg, E., Murphy, A., Sutcliffe, K., Wears, R., Schenkel, S., Perry, S. and Vanderhoef, M. (2005a) Communication in Emergency Medicine: Implications for Patient Safety1. Communication Monographs, 72, 390-413.

Eisenberg, E. M., Murphy, A. G., Sutcliffe, K., Wears, R., Schenkel, S., Perry, S. and Vanderhoef, M. (2005b) Communication in Emergency Medicine: Implications for Patient Safety. Communication Monographs, 72, 390-390.

Ellingson, K. D., Leventhal, J. M. and Weiss, H. B. (2008) Using hospital discharge data to track inflicted traumatic brain injury. Am J Prev Med, 34, S157-62.

Fair, J. F. (1989) Hospital discharge and death communications. Br J Hosp Med, 42, 59-61.

Farsi, M. and Ridder, G. (2006) Estimating the out-of-hospital mortality rate using patient discharge data. Health Econ, 15, 983-95.

Feather, J. and Nichols, L. (1984) Hospital discharge planning: the other side of continuity of care. Caring, 3, 37-8.

Feather, J. and Nichols, L. O. (1985) Hospital discharge planning for continuity of care: the national perspective. NLN Publ, 71-7.

Feinberg, A. N., Lowry, M., 3rd and Koelsch, R. (2002) Early newborn discharge: a tale of two hospitals. Clin Pediatr (Phila), 41, 99-104.

Forster, A., Murff, H., Peterson, J., Gandhi, T. and Bates, D. (2005a) Adverse drug events occurring following hospital discharge. Journal of general internal medicine, 20, 317-323.

Forster, A. J., Andrade, J. and Van Walraven, C. (2005b) Validation of a Discharge Summary Term Search Method to Detect Adverse Events. Journal of the American Medical Informatics Association, 12:, 200-206.

Forster, A. J., Asmis, T. R., Clark, H. D., Al Saied, G., Code, C. C., Caughey, S. C., Baker, K., Watters, J., Worthington, J. and Van Walraven, C. (2004a) Ottawa Hospital Patient Safety Study: incidence and timing of adverse events in patients admitted to a Canadian teaching hospital. CMAJ, 170, 1235-1240.

Forster, A. J., Clark, H. D., Menard, A., Dupuis, N., Chernish, R., Chandok, N., Khan, A. and Van Walraven, C. (2004b) Adverse events among medical patients after discharge from hospital. CMAJ, 170, 345-349.

Forster, A. J., Murff, H. J., Peterson, J. F., Gandhi, T. K. and Bates, D. W. (2003) The Incidence and Severity of Adverse Events Affecting Patients after Discharge from the Hospital. Annals of Internal Medicine, 138, 161-167.

Forster, A. J., Murff, H. J., Peterson, J. F., Gandhi, T. K. and Bates, D. W. (2005c) Adverse Drug Events Occurring Following Hospital Discharge. Journal of general internal medicine, 20, 317-323.

Foss, C. and Askautrud, M. (2010) Measuring the participation of elderly patients in the discharge process from hospital: a critical review of existing instruments. Scandinavian Journal of Caring Sciences.

Foster, D. S., Paterson, C. and Fairfield, G. (2002) Evaluation of immediate discharge documents--room for improvement? Scott Med J, 47, 77-9.

Gagnon, D., Nadeau, S. and Tam, V. (2006) Ideal timing to transfer from an acute care hospital to an interdisciplinary inpatient rehabilitation program following a stroke: an exploratory study. BMC Health Serv Res, 6, 151.

Gandara, E., Moniz, T., Ungar, J., Lee, J., Chan-Macrae, M., O'malley, T. and Schnipper, J. L. (2009) Communication and information deficits in patients discharged to rehabilitation facilities: an evaluation of five acute care hospitals. J Hosp Med, 4, E28-33.

Gandara, E., Moniz, T. T., Ungar, J., Lee, J., Chan-Macrae, M., O'malley, T. and Schnipper, J. L. (2008) Deficits in discharge documentation in patients transferred to rehabilitation facilities on anticoagulation: results of a systemwide evaluation. Jt Comm J Qual Patient Saf, 34, 460-3.

Ganzella, M. and Zago, M. M. F. (2008) The hospital discharge as evaluated by patients and their caregivers: an integrative literature review. Acta Paulista de Enfermagem, 21, 351-355.

Garasen, H. and Johnsen, R. (2007) The quality of communication about older patients between hospital physicians and general practitioners: a panel study assessment. BMC Health Serv Res, 7, 133.

Gaster, B., Knight, C. L., Dewitt, D. E., Sheffield, J. V. L., Assefi, N. P. and Buchwald, D. (2003) Physicians' Use of and Attitudes Toward Electronic Mail for Patient Communication. Journal of general internal medicine, 18, 385-389.

Glintborg, B., Andersen, S. E. and Dalhoff, K. (2007) Insufficient communication about medication use at the interface between hospital and primary care. Qual Saf Health Care, 16, 34-9.

Goldman, L., Pantilat, S. Z. and Whitcomb, W. F. (2001) Passing the clinical baton: 6 principles to guide the hospitalist. The American Journal of Medicine, 111, 36-39.

Goodyear-Smith, F., Wearn, A., Everts, H., Huggard, P. and Halliwell, J. (2005) Pandora's electronic box: GPs reflect upon email communication with their patients. Informatics in Primary Care, 13, 195-202.

Grasel, E., Schmidt, R., Biehler, J. and Schupp, W. (2006) Long-term effects of the intensification of the transition between inpatient neurological rehabilitation and home care of stroke patients. Clin Rehabil, 20, 577-83.

Graumlich, J., Grimmer-Somers, K. and Aldag, J. (2008) Discharge planning scale: Community physicians' perspective. Journal of Hospital Medicine, 3, 455-464.

Graumlich, J. F., Novotny, N. L., Nace, G. S. and Aldag, J. C. (2009) Patient and physician perceptions after software-assisted hospital discharge: cluster randomized trial. J Hosp Med, 4, 356-63.

Greenwald, J. L., Denham, C. R. and Jack, B. W. (2007) The Hospital Discharge: A Review of a High Risk Care Transition With Highlights of a Reengineered Discharge Process. Journal of Patient Safety, 3, 97-106 10.1097/01.jps.0000236916.94696.12.

Gregory, A. H., Flory, L. N., Rajendu, S., Gena, L., Doug, W., Michael, B. M., Dayvalena, C., Angelika, V., Shay, L., Sterling, D. A., Lawrence, J. C. and Christopher, G. M. (2009)

Improving Transitions of Care at Hospital Discharge: Implications for Pediatric Hospitalists and Primary Care Providers. Journal for Healthcare Quality, 4.

Griffiths, P., Edwards, M., Forbes, A. and Harris, R. (2005) Post-acute intermediate care in nursing-led units: a systematic review of effectiveness. Int J Nurs Stud, 42, 107-16.

Grimes, T., Delaney, T., Duggan, C., Kelly, J. G. and Graham, I. M. (2008) Survey of medication documentation at hospital discharge: implications for patient safety and continuity of care. Ir J Med Sci, 177, 93-7.

Grimmer, K. and Moss, J. (2001) The development, validity and application of a new instrument to assess the quality of discharge planning activities from the community perspective. Int J Qual Health Care, 13, 109-116.

Habeeb, M. C. (1982) Information management in discharge planning: future directions. Disch Plann Update, 2, 5-7.

Halasyamani, L., Kripalani, S., Coleman, E., Schnipper, J., Walraven, C. V., Nagamine, J., Torcson, P., Bookwalter, T., Budnitz, T. and Manning, D. (2006) Transition of care for hospitalized elderly patients - Development of a discharge checklist for hospitalists. Journal of Hospital Medicine, 1, 354-360.

Haley, S. M., Gandek, B., Siebens, H., Black-Schaffer, R. M., Sinclair, S. J., Tao, W., Coster, W. J., Ni, P. and Jette, A. M. (2008) Computerized adaptive testing for follow-up after discharge from inpatient rehabilitation: II. Participation outcomes. Arch Phys Med Rehabil, 89, 275-83.

Haller, G., Myles, P. S., Wolfe, R., Weeks, A. M., Stoelwinder, J. and Mcneil, J. (2005) Validity of unplanned admission to an intensive care unit as a measure of patient safety in surgical patients. Anesthesiology, 103, 1121-9.

Halm, E. A., Magaziner, J., Hannan, E. L., Wang, J. J., Silberzweig, S. B., Boockvar, K., Orosz, G. M., Mclaughlin, M. A., Koval, K. J. and Siu, A. L. (2003) Frequency and Impact of Active Clinical Issues and New Impairments on Hospital Discharge in Patients With Hip Fracture. Arch Intern Med, 163, 107-112.

Haraden, C. and Resar, R. (2004) Patient flow in hospitals: understanding and controlling it better. Front Health Serv Manage, 20, 3-15.

Hardy, C., Whitwell, D., Sarsfield, B. and Maimaris, C. (2001) Admission avoidance and early discharge of acute hospital admissions: an accident and emergency based scheme (Structured abstract). Emergency Medicine Journal.

Hartigan, E. G. and Brown, D. J. (1985) Discharge planning for continuity of care. Human resources: roles and interdisciplinary relationships. NLN Publ, 35-42.

Health Services, U. and Research, C. (1998) Hospital and Home Care Study (Structured abstract). Health Services Utilization and Research Commission. Health Services Utilization and Research Commission.

Hellesø, R. (2006) Information handling in the nursing discharge note. Journal of Clinical Nursing, 15, 11-21.

Helleso, R., Sorensen, L. and Lorensen, M. (2005) Nurses' information management at patients' discharge from hospital to home care. International journal of integrated care, 5.

Henderson, G., Fahey, T. and Mcguire, W. (2007) Nutrient-enriched formula versus standard term formula for preterm infants following hospital discharge. Cochrane Database Syst Rev, CD004696.

Herng-Ching, L., Chih-Hsiung, W. and Hsin-Chien, L. (2009) Risk factors for suicide following hospital discharge among cancer patients. Psycho-Oncology, 18, 1038-1044.

Hickey, E. C. and Savage, A. M. (1991) Improving the quality of inter-hospital transfers. J Qual Assur, 13, 16-20.

Higgins, S. (2003) Effectiveness of assistive equipment in patients discharged from acute facilities (Structured abstract). Clayton, Victoria: Centre for Clinical Effectiveness (CCE).

Hill, S. P., Flynn, J. and Crawford, E. J. P. (2000) Early discharge following total knee replacement-a trial of patient satisfaction and outcomes using an orthopaedic outreach team. Journal of orthopaedic nursing, 4, 121-126.

Hinami, K., Farnan, J. M., Meltzer, D. O. and Arora, V. M. (2009) Understanding communication during hospitalist service changes: a mixed methods study. J Hosp Med, 4, 535-40.

Holland, D. E. and Harris, M. R. (2007) Discharge planning, transitional care, coordination of care, and continuity of care: clarifying concepts and terms from the hospital perspective. Home Health Care Serv Q, 26, 3-19.

Hong Sang, L., Christa, F., Arijan, J. P. and Anthonius De, B. (2000) The completeness of medication histories in hospital medical records of patients admitted to general internal medicine wards. British Journal of Clinical Pharmacology, 49, 597-603.

Hopcroft, D. and Calvely, J. (2008) What Primary Care Wants From Hopsital Electronic Discharge Summaries - A North/West Auckland Perspective. New Zealand Family Physician, 35, 101-6.

Hustey, F. M. and Palmer, R. M. (2010) An Internet-Based Communication Network for Information Transfer During Patient Transitions from Skilled Nursing Facility to the Emergency Department. Journal of the American Geriatrics Society, 58, 1148-1152.

Hyde, C. J., Robert, I. E. and Sinclair, A. J. (2000) The effects of supporting discharge from hospital to home in older people (Structured abstract). Age and Ageing.

Jack, B. W., Chetty, V. K., Anthony, D., Greenwald, J. L., Sanchez, G. M., Johnson, A. E., Forsythe, S. R., O'donnell, J. K., Paasche-Orlow, M. K., Manasseh, C., Martin, S. and Culpepper, L. (2009) A Reengineered Hospital Discharge Program to Decrease Rehospitalization. Annals of Internal Medicine, 150, 178-187.

Jackson, A. C., Johnson, B., O'toole, M. and Auslander, G. (2001) Discharge planning for complex paediatric cases. Soc Work Health Care, 34, 161-75.

Jacobs, V. (2000) Informational needs of surgical patients following discharge. Appl Nurs Res, 13, 12-8.

Jagdeep, K. (2009) The Discharge Summary Divide: A Review of Electronic Solutions, Obstacles and Benefits. IN MARGARET, L., DANIELLE, H. and JANE, S. (Eds.).

Janjua, M., Badshah, A., Matta, F., Danescu, L. G., Yaekoub, A. Y. and Stein, P. D. (2008) Treatment of acute pulmonary embolism as outpatients or following early discharge: a systematic review (Provisional abstract). Thrombosis and Haemostasis.

Jansen, J. O. and Grant, I. C. (2003) Communication with general practitioners after accident and emergency attendance: computer generated letters are often deficient. Emergency Medicine Journal, 20:, 256-257.

Jiménez-Puente, A., García-Alegría, J., Gómez-Aracena, J., Hidalgo-Rojas, L., Lorenzo-Nogueiras, L., Perea-Milla-López, E. and Fernández-Crehuet-Navajas, J. (2004)

Readmission Rate as an Indicator of Hospital Performance: The Case of Spain. International Journal of Technology Assessment in Health Care, 20, 385-391.

Johnson, A., Sandford, J. and Tyndall, J. (2003a) Written and verbal information versus verbal information only for patients being discharged from acute hospital settings to home. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Johnson, A., Sandford, J. and Tyndall, J. (2003b) Written and verbal information versus verbal information only for patients being discharged from acute hospital settings to home. Cochrane Database Syst Rev, CD003716.

Johnstone, K., Bagnall, F., & Chan, D. K. Y. (2003). Discharge summaries in aged care: improving communication between an aged care unit and general practitioners. Australasian Journal on Ageing, 22(4), 213-214.

Joint Commission Resources (2005) Focus on Five: Strategies for Properly Discharging Patients: Send patients home with the right information. Joint Commission Perspectives on Patient Safety, 5, 11-11.

Junger, A., Klasen, J., Hartmann, B., Benson, M., Rohrig, R., Kuhn, D. and Hempelmann, G. (2002) Shorter discharge time after regional or intravenous anaesthesia in combination with laryngeal mask airway compared with balanced anaesthesia with endotracheal intubation. Eur J Anaesthesiol, 19, 119-24.

Kannry, J., Moore, C. and Karson, T. (2003) Discharge communique: use of a workflow byproduct to generate an interim discharge summary. AMIA Annu Symp Proc, 341-5.

Karapinar, F., van den Bent, P., Zoer, J., Nijpels, G. and Borgsteede, S. (2010) Informational needs of general practitioners regarding discharge medication: content, timing and pharmacotherapeutic advices, Heidelberg, ALLEMAGNE, Springer.

Karapinar-Carkit, F., Borgsteede, S. D., Zoer, J., Smit, H. J., Egberts, A. C. G. and Van Den Bemt, P. M. L. A. (2009) Effect of Medication Reconciliation With and Without Patient Counseling on the Number of Pharmaceutical Interventions Among Patients Discharged from the Hospital. Ann Pharmacother, 43, 1001-1010.

Karmel, R., Gibson, D., Lloyd, J. and Anderson, P. (2009) Transitions from hospital to residential aged care in Australia. Australasian Journal on Ageing, 28, 198-205.

Karmel, R., Lloyd, J. and Anderson, P. (2008) Movement from hospital to residential aged care. Canberra, Australian Institute of Health and Welfare.

Karmel, R. and Rosman, D. (2008) Linkage of health and aged care service events: comparing linkage and event selection methods. BMC Health Services Research, 8, 149.

Kassirer, J. P. (2000) Patients, physicians, and the Internet. Health Aff, 19, 115-123.

Kaushal, R. and Bates, D. W. (2002) Information technology and medication safety: what is the benefit? Quality and Safety in Health Care, 11, 261-265.

Kimhy, D., Harkavy-Friedman, J. M. and Nelson, E. A. (2004) Identifying life stressors of patients with schizophrenia at hospital discharge. Psychiatr Serv, 55, 1444-5.

Kind, A., Anderson, P., Hind, J., Robbins, J. and Smith, M. (2010) Omission of Dysphagia Therapies in Hospital Discharge Communications. Dysphagia.

Kirby, J., Barker, B., Fernando, D., Jose, M., Curtis, C., Goodchild, A., Dickens, C., Olla, E., Cooke, R., Idris, I. and Thomson, G. (2006) A prospective case control study of the benefits of electronic discharge summaries. Journal of Telemedicine and Telecare, 12, 20.

Kisely Steve, R., Campbell Leslie, A. and Preston Neil, J. (2005) Compulsory community and involuntary outpatient treatment for people with severe mental disorders. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Koehler, B. E., Richter, K. M., Youngblood, L., Cohen, B. A., Prengler, I. D., Cheng, D. and Masica, A. L. (2009) Reduction of 30-day postdischarge hospital readmission or emergency department (ED) visit rates in high-risk elderly medical patients through delivery of a targeted care bundle. J Hosp Med, 4, 211-8.

Kopach, R., Sadat, S., Gallaway, I. D., Geiger, G., Ungar, W. J. and Coyte, P. C. (2005) Cost-effectiveness analysis of medical documentation alternatives (Structured abstract). International Journal of Technology Assessment in Health Care.

Kossovsky, M. P., Chopard, P., Bolla, F., Sarasin, F. P., Louis-Simonet, M., Allaz, A. F., Perneger, T. V. and Gaspoz, J. M. (2002) Evaluation of quality improvement interventions to reduce inappropriate hospital use. Int J Qual Health Care, 14, 227-32.

Kosters, S., Kosters, M., Becker, T. and Puschner, B. (2009) Discharge planning in mental health care: a systematic review of the recent literature (Provisional abstract). Acta Psychiatrica Scandinavica.

Kravet, S. J., Levine, R. B., Rubin, H. R. and Wright, S. M. (2007) Discharging Patients Earlier in the Day: A Concept Worth Evaluating. The Health Care Manager, 26, 142-146 10.1097/01.HCM.0000268617.33491.60.

Kripalani, S., Henderson, L. E., Jacobson, T. A. and Vaccarino, V. (2008) Medication Use Among Inner-City Patients After Hospital Discharge: Patient-Reported Barriers and Solutions. Mayo Clinic Proceedings, 83, 529-535.

Kripalani, S., Jackson, A. T., Schnipper, J. L. and Coleman, E. A. (2007a) Promoting effective transitions of care at hospital discharge: a review of key issues for hospitalists. J Hosp Med, 2, 314-23.

Kripalani, S., Lefevre, F., Phillips, C. O., Williams, M. V., Basaviah, P. and Baker, D. W. (2007b) Deficits in communication and information transfer between hospital-based and primary care physicians: implications for patient safety and continuity of care. Jama, 297, 831-41.

Kripalani, S., Price, M., Vigil, V., & Epstein, K. R. (2008). Frequency and predictors of prescription-related issues after hospital discharge. J Hosp Med, 3(1), 12-19.

Kunz, R., Wegscheider, K., Guyatt, G., Zielinski, W., Rakowsky, N., Donner-Banzhoff, N., and Muller-Lissner, S. (2007). Impact of short evidence summaries in discharge letters on adherence of practitioners to discharge medication. A cluster-randomised controlled trial. Quality and Safety in Health Care, 16(6), 456-461.

Kutner, J. S., Meyer, S. A., Beaty, B. L., Kassner, C. T., Nowels, D. E. and Beehler, C. (2004) Outcomes and characteristics of patients discharged alive from hospice. J Am Geriatr Soc, 52, 1337-42.

Kwan, J. and Sandercock, P. (2004) In-hospital care pathways for stroke. Cochrane Database Syst Rev, CD002924.

Lalonde, L., Lampron, A.-M., Vanier, M.-C., Levasseur, P., Khaddag, R. and Chaar, N. (2008) Effectiveness of a medication discharge plan for transitions of care from hospital to outpatient settings. Am J Health Syst Pharm, 65, 1451-1457.

Langan, R. C. (2006) Discharge procedures for healthy newborns. Am Fam Physician, 73, 849-52.

Langhorne, P. and Widen-Holmqvist, L. (2007) Early supported discharge after stroke (Brief record). Journal of Rehabilitation Medicine.

Larsen, T., Olsen, T. S. and Sorensen, J. (2006) Early home-supported discharge of stroke patients: a health technology assessment. Int J Technol Assess Health Care, 22, 313-20.

Larson, J., Bjorvell, C., Billing, E. and Wredling, R. (2004) Testing of an audit instrument for the nursing discharge note in the patient record. Scand J Caring Sci, 18, 318-24.

Last, P. M. (1985) The hospital discharge summary. Med J Aust, 143, 174-5.

Leath, C. A., 3rd, Kendrick, J. E. T., Numnum, T. M., Straughn, J. M., Jr., Rocconi, R. P., Sfakianos, G. P. and Lang, J. D., Jr. (2006) Outcomes of gynecologic oncology patients admitted to the intensive care unit following surgery: A university teaching hospital experience. Int J Gynecol Cancer, 16, 1766-9.

Le Doare, K., Banerjee, D., & Oldfield, M. (2009). Written Communication Between General Practitioners and Hospitals, an Analysis. The West London Medical Journal, 1, 67-75.

Lee, M. J., Proctor, E. and Morrow-Howell, N. (2006) Depression outcomes and quality of postdischarge care of elders hospitalized for major depression. Psychiatr Serv, 57, 1446-51.

Lee, S., Broderick, T. J., Haynes, J., Bagwell, C., Doarn, C. R. and Merrell, R. C. (2003) The role of low-bandwidth telemedicine in surgical prescreening. Journal of pediatric surgery, 38, 1281-1283.

Leff, B. and Boult, C. (2004) Adverse Events following Discharge from the Hospital. Annals of Internal Medicine, 140, 231.

Leonard, K. J., Rauner, M. S., Schaffhauser-Linzatti, M. M. and Yap, R. (2003) The effect of funding policy on day of week admissions and discharges in hospitals: the cases of Austria and Canada. Health Policy, 63, 239-57.

Lindenauer, P. K., Rothberg, M. B., Pekow, P. S., Kenwood, C., Benjamin, E. M. and Auerbach, A. D. (2007) Outcomes of care by hospitalists, general internists, and family physicians. The New England journal of medicine, 357, 2589-2589.

Lofgren, B., Gustafson, Y. and Nyberg, L. (2000) Cross-validation of a model predicting discharge home after stroke rehabilitation. Validating stroke discharge predictors. Cerebrovasc Dis, 10, 118-25.

Louis-Simonet, M., Kossovsky, M. P., Sarasin, F. P., Chopard, P., Gabriel, V., Perneger, T. V. and Gaspoz, J.-M. (2004) Effects of a structured patient-centered discharge interview on patients' knowledge about their medications. The American Journal of Medicine, 117, 563-568.

Mageean, R. J. (1986) Study of "discharge communications" from hospital. Br Med J (Clin Res Ed), 293, 1283-4.

Mahler, B. (1988) Discharge planning: continuity of rehabilitation. Disch Plann Update, 8, 3-5.

Makaryus, A. N. and Friedman, E. A. (2005) Patients' Understanding of Their Treatment Plans and Diagnosis at Discharge. Mayo Clinic Proceedings, 80, 991-994.

Mann, L. (2005a) From'Silos' to Seamless Healthcare: Bringing Hospitals and GPs Back Together Again. Medical Journal of Australia, 182, 34-7.

Mann, S. (2005b) From 'silos' to seamless healthcare: brining hospitals and Gps back together again. Medical Journal of Australia, 182, 34-37.

Manning, D. M., Meara, J. G., Williams, A. R., Rahman, A., Myhre, D., Tammel, K. J. and Carter, L. C. (2007) 3D: a tool for medication discharge education. Quality and Safety in Health Care, 16, 71-76.

Margolis, L. H. and Schwartz, J. B. (2000) The relationship between the timing of maternal postpartum hospital discharge and breastfeeding. J Hum Lact, 16, 121-8.

Masaaki, S., Hiroaki, S., Yuko, T. Y., Morio, O. and Kiyohisa, S. (2001) Improving the quality of discharge summaries. Canadian Medical Association. Journal, 165, 16.

Maslove, D. M., Leiter, R. E., Griesman, J., Arnott, C., Mourad, O., Chow, C. M. and Bell, C. M. (2009) Electronic versus dictated hospital discharge summaries: a randomized controlled trial. J Gen Intern Med, 24, 995-1001.

McKenna, H., Keeney, S., Glenn, A., & Gordon, P. (2000). Discharge planning: an exploratory study. Journal of Clinical Nursing, 9(4), 594-601.

Mcmillan, T. E., Allan, W. and Black, P. N. (2006) Accuracy of information on medicines in hospital discharge summaries. Intern Med J, 36, 221-5.

Medicine, I. O. (2001) Crossing the quality chasm: A new health system for the 21st century.

Meijer, R., Van Limbeek, J., Peusens, G., Rulkens, M., Dankoor, K., Vermeulen, M. and De Haan, R. J. (2005) The Stroke Unit Discharge Guideline, a prognostic framework for the discharge outcome from the hospital stroke unit. A prospective cohort study. Clin Rehabil, 19, 770-8.

Melby, L. and Helleso, R. (2010) Electronic exchange of discharge summaries between hospital and municipal care from health personnel's perspectives. Int J Integr Care, 10, e039.

Meyer, B., Car, J., Atherton, H. and Mckinstry, B. (2009) Email for communicating results of diagnostic medical investigations to patients. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Middleton, S., Appleberg M, Girgis S and Ward., J. (2004) Effective discharge policy: are we getting there? Australian Health Review, 28, 255-9.

Midlöv, P., Bergkvist, A., Bondesson, Å., Eriksson, T. and Höglund, P. (2005) Medication errors when transferring elderly patients between primary health care and hospital care. Pharmacy World and Science, 27, 116-120.

Midlöv, P., Deierborg, E., Holmdahl, L., Höglund, P. and Eriksson, T. (2008a) Clinical outcomes from the use of Medication Report when elderly patients are discharged from hospital. Pharmacy World and Science, 30, 840-845.

Midlöv, P., Holmdahl, L., Eriksson, T., Bergkvist, A., Ljungberg, B., Widner, H., Nerbrand, C. and Höglund, P. (2008b) Medication report reduces number of medication errors when elderly patients are discharged from hospital. Pharmacy World and Science, 30, 92-98.

Mikiel-Kostyra, K., Mazur, J. and Wojdan-Godek, E. (2005) Factors affecting exclusive breastfeeding in Poland: cross-sectional survey of population-based samples. Soz Praventivmed, 50, 52-9.

Miller, P., Gladman, J. R., Cunliffe, A. L., Husbands, S. L., Dewey, M. E. and Harwood, R. H. (2005) Economic analysis of an early discharge rehabilitation service for older people (Structured abstract). Age and Ageing.

Mishra, A. K., Bhattarai, S., Bhurtel, P., Bista, N. R., Shrestha, P., Thakali, K., Banthia, P. and Pathak, S. R. (2009) Need for improvement of medical records. JNMA J Nepal Med Assoc, 48, 103-6.

Mistiaen, P., Francke, A. L. and Poot, E. (2007) Interventions aimed at reducing problems in adult patients discharged from hospital to home: a systematic meta-review. BMC Health Serv Res, 7, 47.

Mistiaen, P. and Poot, E. (2006) Telephone follow-up, initiated by a hospital-based health professional, for postdischarge problems in patients discharged from hospital to home. Cochrane Database Syst Rev, CD004510.

Moore, C., Mcginn, T. and Halm, E. (2007) Tying Up Loose Ends: Discharging Patients With Unresolved Medical Issues. Arch Intern Med, 167, 1305-1311.

Moore, C., Wisnivesky, J., Williams, S. and Mcginn, T. (2003) Medical errors related to discontinuity of care from an inpatient to an outpatient setting. Journal of general internal medicine, 18, 646-651.

Morris, L. and Chen, T. F. (2005) Enhancing communication between hospital and community: multidisciplinary discharge case conferences. Pharm World Sci, 27, 71-2.

Moss, J. E., Flower, C. L., Houghton, L. M., Moss, D. L., Nielsen, D. A., & Taylor, D. M. (2002). A multidisciplinary Care Coordination Team improves emergency department discharge planning practice. Med J Aust, 177(8), 435-439.

Murff, H. J., Forster, A. J., Peterson, J. F., Fiskio, J. M., Heiman, H. L. and Bates, D. W. (2003) Electronically screening discharge summaries for adverse medical events. J Am Med Inform Assoc, 10, 339-50.

Murff, H. J., Patel, V. L., Hripcsak, G. and Bates, D. W. (2003) Detecting adverse events for patient safety research: a review of current methodologies. J Biomed Inform, 36, 131-43.

Myers, J. S., Jaipaul, C. K., Kogan, J. R., Krekun, S., Bellini, L. M. and Shea, J. A. (2006) Are Discharge Summaries Teachable? The Effects of a Discharge Summary Curriculum on the Quality of Discharge Summaries in an Internal Medicine Residency Program. Academic Medicine, 81, S5-S8 10.1097/01.ACM.0000236516.63055.8b.

Nagendra, N., Rajavelu, P. and Rajagopalan, A. (2008) Pre-formatted written discharge summary-a step towards quality assurance in the emergency department. Int J Emerg Med, 1, 321-5.

Naidu, N., Rajavelu, P., & Rajagopalan, A. (2008). Pre-formatted written discharge summary-a step towards quality assurance in the emergency department. Int J Emerg Med, 1(4), 321-325.

National eHealth Transition Authority (2009) Release Notification: Discharge Summary Release 1.0. http://www.nehta.gov.au/e-communications-in-practice/edischarge-summaries (Accessed 19 August 2010)

Nauenberg, E., Andrijuk, Y. and Eisinger, M. (2001) Reconsideration of discharge data to measure competition in the hospital industry. Health Econ, 10, 271-6.

Naylor, M., Brooten, N., Jones, R., Lavizzomourey, R., Mezey, M. and Pauly, M. (1994) Comprehensive discharge planning for the hospitalized elderly: a randomized clinical trial (Structured abstract). Annals of Internal Medicine.

Naylor, M. D. (2002) Transitional care of older adults. Annu Rev Nurs Res, 20, 127-47.

Naylor, M. D. (2006) Transitional care: A critical dimension of the home healthcare quality agenda. Journal for Healthcare Quality, 28, 48-48.

Naylor, M. D. and Mccauley, K. M. (1999) The effects of a discharge planning and home follow-up intervention on elders hospitalized with common medical and surgical cardiac conditions. J Cardiovasc Nurs, 14, 44-54.

Nazareth, I., Burton, A., Shulman, S., Smith, P., Haines, A., & Timberal, H. (2001). A pharmacy discharge plan for hospitalized elderly patients--a randomized controlled trial. Age Ageing, 30(1), 33-40.

Nerland, E. (1978) Patient transfer form provides continuity of care. Hospitals, 52, 151-2, 154.

New Zealand Health Technology, A. (2002) What is the efficacy of discharge planning protocols, i.e., managing the transition from hospital to community? What should be included in the plan? Evidence Tables (Brief record). Christchurch: New Zealand Health Technology Assessment (NZHTA). New Zealand Health Technology Assessment (NZHTA).

Nicholson, C., Jackson, C., Tweeddale, M. and Holliday, D. (2003) Electronic patient records: achieving best practice in information transfer between hospital and community providers - an integration success story. Quality in Primary Care, 11, 233-240.

Norton, R. A. (1987) Discharge planning extends quality past hospital stay. Tex Hosp, 43, 34.

O'connell, E. M., Teich, J. M., Pedraza, L. A. and Thomas, D. (1996) A comprehensive inpatient discharge system. Proc AMIA Annu Fall Symp, 699-703.

O'leary, K. J., Liebovitz, D. M., Feinglass, J., Liss, D. T. and Baker, D. W. (2006) Outpatient physicians' satisfaction with discharge summaries and perceived need for an electronic discharge summary. Journal of Hospital Medicine, 1, 317-320.

O'leary, K. J., Liebovitz, D. M., Feinglass, J., Liss, D. T., Evans, D. B., Kulkarni, N., Landler, M. P. and Baker, D. W. (2009) Creating a better discharge summary: improvement in quality and timeliness using an electronic discharge summary. J Hosp Med, 4, 219-25.

Oetgen, W. J., Steinweg, D. L. and Kimball, D. B. (1982) The hospital discharge summary: a new format. Mil Med, 147, 1054-5.

Orrico, K. B. (2008) Sources and types of discrepancies between electronic medical records and actual outpatient medication use. J Manag Care Pharm, 14, 626-31.

Ortenstrand, A., Winbladh, B., Nordstrom, G. and Waldenstrom, U. (2001) Early discharge of preterm infants followed by domiciliary nursing care: parents' anxiety, assessment of infant health and breastfeeding. Acta Paediatr, 90, 1190-5.

Pagliari, C., Donnan, P., Morrison, J., Ricketts, I., Gregor, P. and Sullivan, F. (2005) Adoption and perception of electronic clinical communications in Scotland. Informatics in Primary Care, 13, 97-104.

Pantilat, S. Z., Lindenauer, P. K., Katz, P. P. and Wachter, R. M. (2001) Primary care physician attitudes regarding communication with hospitalists. Am J Med, 111, 15S-20S.

Paquette-Lamontagne, N., Mclean, W. M., Besse, L. and Cusson, J. (2001) Evaluation of a new integrated discharge prescription form. Ann Pharmacother, 35, 953-958.

Parker, S. G., Peet, S. M., Mcpherson, A., Cannaby, A. M., Abrams, K., Baker, R., Wilson, A., Lindesay, J., Parker, G. and Jones, D. R. (2002) A systematic review of discharge arrangements for older people (Structured abstract). Health Technology Assessment.

Parry, C., Coleman, E. A., Smith, J. D., Frank, J. and Kramer, A. M. (2003) The care transitions intervention: a patient-centered approach to ensuring effective transfers between sites of geriatric care. Home health care services quarterly.

Paterson, J. M. and Allega, R. L. (1999) Improving communication between hospital and community physicians. Feasibility study of a handwritten, faxed hospital discharge summary. Discharge Summary Study Group. Can Fam Physician, 45, 2893-9.

Patterson, V., Swinfen, P., Swinfen, R., Azzo, E., Taha, H. and Wootton, R. (2007) Supporting Hospital Doctors in the Middle East by Email Telemedicine: Something the Industrialized World Can Do to Help. Journal of Medical Internet Research, 9.

Paulino, E., Bouvy, M., Gastelurrutia, M., Guerreiro, M. and Buurma, H. (2004) Drug related problems identified by European community pharmacists in patients discharged from hospital. Pharmacy World and Science, 26, 353-360.

Payne, S., Kerr, C., Hawker, S., Hardey, M. and Powell, J. (2002) The communication of information about older people between health and social care practitioners. Age Ageing, 31, 107-17.

Perren, A., Donghi, D., Marone, C. and Cerutti, B. (2009a) Economic burden of unjustified medications at hospital discharge (Brief record). Swiss Medical Weekly.

Perren, A., Previsdomini, M., Cerutti, B., Soldini, D., Donghi, D. and Marone, C. (2009b) Omitted and unjustified medications in the discharge summary. Quality and Safety in Health Care, 18, 205-208.

Pham, H. H., Grossman, J. M., Cohen, G. and Bodenheimer, T. (2008) Hospitalists and care transitions: the divorce of inpatient and outpatient care. Health Aff (Millwood), 27, 1315-27.

Phillips, C. O., Wright, S. M., Kern, D. E., Singa, R. M., Shepperd, S. and Rubin, H. R. (2004a) Comprehensive Discharge Planning With Postdischarge Support for Older Patients With Congestive Heart Failure: A Meta-analysis. JAMA, 291, 1358-1367.

Phillips, C. O., Wright, S. M., Kern, D. E., Singa, R. M., Shepperd, S. and Rubin, H. R. (2004b) Comprehensive discharge planning with postdischarge support for older patients with congestive heart failure: a meta-analysis (Brief record). Journal of the American Medical Association.

Pieper, B., Sieggreen, M., Freeland, B., Kulwicki, P., Frattaroli, M., Sidor, D., Palleschi, M. T., Burns, J., Bednarski, D. and Garretson, B. (2006) Discharge Information Needs of Patients After Surgery. Journal of Wound Ostomy and Continence Nursing, 33, 281-290.

Pieper, B., Sieggreen, M., Nordstrom, C. K., Freeland, B., Kulwicki, P., Frattaroli, M., Sidor, D., Palleschi, M. T., Burns, J. and Bednarski, D. (2007) Discharge Knowledge and Concerns of Patients Going Home With a Wound. Journal of Wound Ostomy and Continence Nursing, 34, 245-253 10.1097/01.WON.0000270817.06942.00.

Pillai, A., Thomas, S. and Garg, M. (2004) The electronic immediate discharge document: experience from the South West of Scotland. Informatics in Primary Care, 12, 67-73.

Plews-Ogan, M., Mohan, M. N., Sue, F., Darlene, L., Donna, W., Don, M., John, B. S. and Joel, M. S. (2004a) Patient Safety in the Ambulatory Setting. Journal of general internal medicine, 19, 719-725.

Plews-Ogan, M., Nadkarni, M., Forren, S., Leon, D., White, D., Marineau, D., Schorling, J. and Schectman, J. (2004b) Patient safety in the ambulatory setting. Journal of general internal medicine, 19, 719-725.

Podichetty, V. and Penn, D. (2004) The progressive roles of electronic medicine: benefits, concerns, and costs. The American journal of the medical sciences, 328, 94-94.

Ponniah, A., Anderson, B., Shakib, S., Doecke, C. J. and Angley, M. (2007) Pharmacists' role in the post-discharge management of patients with heart failure: a literature review (Structured abstract). Journal of Clinical Pharmacy and Therapeutics.

Poole, D. L., Chainakul, J. N., Pearson, M. and Graham, L. (2006) Medication reconciliation: a necessity in promoting a safe hospital discharge. J Healthc Qual, 28, 12-9.

Poon, E. G., Blumenfeld, B., Hamann, C., Turchin, A., Graydon-Baker, E., Mccarthy, P. C., Poikonen, J., Mar, P., Schnipper, J. L., Hallisey, R. K., Smith, S., Mccormack, C., Paterno, M., Coley, C. M., Karson, A., Chueh, H. C., Van Putten, C., Millar, S. G., Clapp, M. and Bhan, I. (2006) Design and Implementation of an Application and Associated Services to Support Interdisciplinary Medication Reconciliation Efforts at an Integrated Healthcare Delivery Network. Journal of the American Medical Informatics Association, 13, 581-592.

Posner, S. R., Boxer, L., Proctor, M., Upchurch, G. R., Jr., Stanley, J. C. and Henke, P. K. (2004) Uncomplicated carotid endarterectomy: factors contributing to blood pressure instability precluding safe early discharge. Vascular, 12, 278-84.

Preen, D. B., Bailey, B. E. S., Wright, A., Kendall, P., Phillips, M., Hung, J., Hendriks, R., Mather, A. and Williams, E. (2005) Effects of a multidisciplinary, post-discharge continuance of care intervention on quality of life, discharge satisfaction, and hospital length of stay: a randomized controlled trial. Int J Qual Health Care, 17, 43-51.

Preyde, M., Macaulay, C. and Dingwall, T. (2009) Discharge planning from hospital to home for elderly patients: a meta-analysis (Provisional abstract). Journal of Evidence-Based Social Work.

Quan, H., Parsons, G. A. and Ghali, W. A. (2004) Validity of procedure codes in International Classification of Diseases, 9th revision, clinical modification administrative data. Med Care, 42, 801-9.

Ranmuthugala, G., Brown, L., Lymer, S. and Thurecht, L. (2008) Hospital admissions in the National Health Survey and hospital separations in the National Hospital Morbidity Dataset: what is the difference? Aust N Z J Public Health, 32, 276-81.

Rao, P., Andrei, A., Fried, A., Gonzalez, D. and Shine, D. (2005) Assessing quality and efficiency of discharge summaries. Am J Med Qual, 20, 337-43.

Raval, Amish, N., Marchiori, Gordon, E., Arnold and O, J. M. (2003) Improving the continuity of care following discharge of patients hospitalized with heart failure: Is the discharge summary adequate?, Oakville, ON, CANADA, Pulsus.

Reilly, P. M., Schwab, C. W., Kauder, D. R., Dabrowski, G. P., Gracias, V., Gupta, R., Pryor, J. P., Braslow, B. M., Kim, P. and Wiebe, D. J. (2005) The invisible trauma patient: emergency department discharges. J Trauma, 58, 675-83; discussion 683-5.

Reponen, J., Marttila, E., Paajanen, H. and Turula, A. (2004) Extending a multimedia medical record to a regional service with electronic referral and discharge letters. J Telemed Telecare, 10, 81-83.

Reppun, J. I. (1988) Discharge from the hospital. Hawaii Med J, 47, 261.

Rhew, D. C., Tu, G. S., Ofman, J., Henning, J. M., Richards, M. S. and Weingarten, S. R. (2001) Early switch and early discharge strategies in patients with community-acquired pneumonia: a meta-analysis (Structured abstract). Archives of Internal Medicine.

Richards, S. and Coast, J. (2003) Interventions to improve access to health and social care after discharge from hospital: a systematic review (Provisional abstract). Journal of Health Services Research and Policy.

Roland, M., Dusheiko, M., Gravelle, H. and Parker, S. (2005) Follow up of people aged 65 and over with a history of emergency admissions: analysis of routine admission data. BMJ, 330, 289-292.

Rosemary, W. and Heather, G. (2005) Nurses' perceptions of discharge planning. Nursing and Health Sciences, 7, 175-183.

Roy, C. L., Poon, E. G., Karson, A. S., Ladak-Merchant, Z., Johnson, R. E., Maviglia, S. M. and Gandhi, T. K. (2005) Patient Safety Concerns Arising from Test Results That Return after Hospital Discharge. Annals of Internal Medicine, 143, 121-128.

Roy, M. J., Herbers, J. E., Seidman, A. and Kroenke, K. (2003) Improving patient satisfaction with the transfer of care. A randomized controlled trial. Journal of general internal medicine.

Runciman, W. B., Roughead, E. E., Semple, S. J. and Adams, R. J. (2003) Adverse drug events and medication errors in Australia. Int J Qual Health Care, 15, i49-59.

Runge, C., Gilham, J. and Peut, A. (2009) Transitions in care of people with dementia: A systematic review of the literature. Canberra, Australian Institute of Health and Welfare.

Rutherford, A. and Burge, B. (2001) General practitioners and hospitals. Continuity of care. Aust Fam Physician, 30, 1101-7.

Rydeman, I. and Törnkvist, L. (2009) Getting prepared for life at home in the discharge process from the perspective of the older persons and their relatives. International Journal of Older People Nursing, 9999.

Saliba, D., Elliott, M., Rubenstein, L. Z., Solomon, D. H., Young, R. T., Kamberg, C. J., Roth, R. N. C., Maclean, C. H., Shekelle, P. G., Sloss, E. M. and Wenger, N. S. (2001) The Vulnerable Elders Survey: A Tool for Identifying Vulnerable Older People in the Community. Journal of the American Geriatrics Society, 49, 1691-1699.

Sandler, D. A. and Mitchell, J. R. (1987) Interim discharge summaries: how are they best delivered to general practitioners? Br Med J (Clin Res Ed), 295, 1523-5.

Savona-Ventura, C., Grech, E. S., Grech, A. and Fenech-Gonzi, P. (1990) Computerization of data: a person-based medical record system. Int J Gynaecol Obstet, 32, 247-54.

Schabetsberger, T., Ammenwerth, E., Andreatta, S., Gratl, G., Haux, R., Lechleitner, G., Schindelwig, K., Stark, C., Vogl, R., Wilhelmy, I. and Wozak, F. (2006) From a paper-based transmission of discharge summaries to electronic communication in health care regions. International Journal of Medical Informatics, 75, 209-215.

Scheeringa, M. S., J., Sara, A. and Samuels, L. (2003) Discharge Referral Systems: The Promise and the Challenges. IN COIERA, E., CHU, S. and SIMPSON, C. (Eds.) HIC 2003 RACGP12CC [combined conference] Brunswick East, Health Informatics Society of Australia (HISA) ; Royal Australian College of General Practitioners (RACGP), .

Schiff, G. (1990) Dictation of the discharge resume. J Gen Intern Med, 5, 272-3.

Schultz, K., Carayon, P., Hundt, A. and Springman, S. (2007) Care transitions in the outpatient surgery preoperative process: facilitators and obstacles to information flow and their consequences. Cognition, Technology and Work, 9, 219-231.

Seiler, H. C. (1978) Patient discharge planning for continuity of care. OH, 22, 18-9.

Selvidge, J., Watters D. A. K., Kakris P., Gallichio J. and Cohen P. (2003) The Electronic Discharge Summary - a Local Solution Succeeds. HINZ 2003 (2nd : 2003 : Darling Harbour, N.S.W.).

Shepperd, S., Doll, H., Broad, J., Gladman, J., Iliffe, S., Langhorne, P., Richards, S., Martin, F. and Harris, R. (2009a) Early discharge hospital at home. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Shepperd, S., Doll, H., Broad, J., Gladman, J., Iliffe, S., Langhorne, P., Richards, S., Martin, F. and Harris, R. (2009b) Early discharge hospital at home. Cochrane Database Syst Rev, CD000356.

Shepperd, S., Mcclaran, J., Phillips Christopher, O., Lannin Natasha, A., Clemson Lindy, M., Mccluskey, A., Cameron Ian, D. and Barras Sarah, L. (2010a) Discharge planning from hospital to home. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

Shepperd, S., Parkes, J., Mcclaren, J. and Phillips, C. (2010b) Discharge planning from hospital to home. Cochrane Database of Systematic Reviews, 1.

Singh, H., Thomas, E. J., Mani, S., Sittig, D., Arora, H., Espadas, D., Khan, M. M. and Petersen, L. A. (2009) Timely Follow-up of Abnormal Diagnostic Imaging Test Results in an Outpatient Setting: Are Electronic Medical Records Achieving Their Potential? Arch Intern Med, 169, 1578-1586.

Smith, J. and Liles, C. (2007) Information needs before hospital discharge of myocardial infarction patients: a comparative, descriptive study. J Clin Nurs, 16, 662-71.

Smith, R. P. and Holzman, G. B. (1989) The application of a computer data base system to the generation of hospital discharge summaries. Obstet Gynecol, 73, 803-7.

Smith, S. (1996) Discharge planning: the need for effective communication. Nurs Stand, 10, 39-41.

Snow, V., Beck, D., Budnitz, T., Miller, D., Potter, J., Wears, L. R., Weiss, B. K. and Williams, V. M. (2009) Transitions of Care Consensus Policy Statement: American College of Physicians, Society of General Internal Medicine, Society of Hospital Medicine, American Geriatrics Society, American College of Emergency Physicians, and Society for Academic Emergency Medicine. Journal of Hospital Medicine, 4, 364-370.

Solet, D. J., Norvell, J. M., Rutan, G. H. and Frankel, R. M. (2005) Lost in translation: challenges and opportunities in physician-to-physician communication during patient handoffs. Acad Med, 80, 1094-9.

Spath, P. (2003) Prevent communication breakdowns. Errors can occur during information transfer. Hosp Peer Rev, 28, 40-2.

Spath, P. (2005) Move from information transfer to exchange. Hosp Peer Rev, 30, 157-60.

Steffen, S., Kösters, M., Becker, T., & Puschner, B. (2009). Discharge planning in mental health care: a systematic review of the recent literature. Acta Psychiatrica Scandinavica, 120(1), 1-9.

Stephen, W., Warwick, R., Margaret, C. and Rhona, M. (2001) General practitioner and hospital communications: A review of discharge summaries. Journal of Quality in Clinical Practice, 21, 104-108.

Stern, P. H. and Rubin, E. H. (1979) Computerized discharge summaries. Arch Phys Med Rehabil, 60, 25-9.

Stetson, P. D., Keselman, A., Rappaport, D., Van Vleck, T., Cooper, M., Boyer, A. and Hripcsak, G. (2005) Electronic discharge summaries. AMIA Annu Symp Proc, 1121.

Stiell, A. P., Forster, A. J., Stiell, I. G. and Van Walraven, C. (2005) Maintaining continuity of care: a look at the quality of communication between Ontario emergency departments and community physicians. CJEM, 7, 155-61.

Stiles, R. A., Deppen, S. A., Figaro, M. K., Gregg, W. M., Jirjis, J. N., Rothman, R. L., Johnston, P. E., Miller, R. A., Dittus, R. S. and Speroff, T. (2007) Behind-the-Scenes of Patient-Centered Care. Medical Care, 45, 1205-1209.

Storgion, S. A. and Stutts, A. L. (2000) Transitional care: a multidisciplinary case management-based unit (Brief record). Pediatric Nursing.

Stutchfield, B. M., Jagilly, R. and Tulloh, B. R. (2007) Second Opinions in Remote Surgical Practice Using Email and Digital Photography. ANZ Journal of Surgery, 77, 1009-1012.

Styrborn, K. (1995) Early discharge planning for elderly patients in acute hospitals: an intervention study (Structured abstract). Scandinavian Journal of Social Medicine.

Sumi, M., Satoh, H., Yamashita, Y. T., Ohtsuka, M., & Sekizawa, K. (2001). Improving the quality of discharge summaries. CMAJ, 165(1), 16.

Sunil, K., Megan, P., Victoria, V. and Kenneth, R. E. (2008) Frequency and predictors of prescription-related issues after hospital discharge. Journal of Hospital Medicine, 3, 12-19.

Swender, P. T., Schneider, A. J. and Oski, F. A. (1975) A functional hospital discharge summary. J Pediatr, 86, 97-8.

Szary, N. M., Sarwal, A., Boshard, B. J. and Hall, L. W. (2010) Transfer of care communication: improving communication during inter-facility patient transfer. Mo Med, 107, 127-30.

Tam, V. C., Knowles, S. R., Cornish, P. L., Fine, N., Marchesano, R. and Etchells, E. E. (2005) Frequency, type and clinical importance of medication history errors at admission to hospital: a systematic review. CMAJ, 173, 510-5.

Tarn, D. M., Heritage, J., Paterniti, D. A., Hays, R. D., Kravitz, R. L. and Wenger, N. S. (2006) Physician communication when prescribing new medications. Arch Intern Med, 166, 1855-62.

Tattersall, M., Butow, P., Brown, J. and Thompson, J. (2002) Improving doctor's letters. Medical Journal of Australia, 177, 516-620.

Teasell, R. W., Foley, N. C., Bhogal, S. K. and Speechley, M. R. (2003) Early supported discharge in stroke rehabilitation (Structured abstract). Topics in Stroke Rehabilitation.

Tennier, L. D. (1997) Discharge planning: an examination of the perceptions and recommendations for improved discharge planning at the Montreal General Hospital. Soc Work Health Care, 26, 41-60.

The Netherlands Organisation for Health, R. and Development (2006) A prospective, randomised controlled trial comparing in-hospital treatment and early assisted discharge for exacerbations of chronic obstructive pulmonary disease (COPD) (project) (Project record). The Netherlands Organisation for Health Research and Development (ZonMw).

Thibodeau, L. G., Chan, L., Reilly, K. M. and Reyes, V. M. (2000) Improving telephone contact rates of patients discharged from the emergency department. Ann Emerg Med, 35, 564-7.

Tjia, J., Bonner, A., Briesacher, B. A., Mcgee, S., Terrill, E. and Miller, K. (2009) Medication discrepancies upon hospital to skilled nursing facility transitions. J Gen Intern Med, 24, 630-5.

Triller, D. M., Clause, S. L. and Hamilton, R. A. (2005) Risk of adverse drug events by patient destination after hospital discharge. Am J Health Syst Pharm, 62, 1883-1889.

Tulloch, A. J., Fowler, G. H., Mcmullan, J. J. and Spence, J. M. (1975) Hospital discharge reports: content and design. Br Med J, 4, 443-6.

Tyson, S. and Turner, G. (2000a) Discharge and follow-up for people with stroke: what happens and why. Clin Rehabil, 14, 381-92.

Tyson, S. and Turner, G. (2000b) Discharge and follow-up for people with stroke: what happens and why. Clinical Rehabilitation, 14, 381-392.

Unroe, K. T., Pfeiffenberger, T., Riegelhaupt, S., Jastrzembski, J., Lokhnygina, Y. and Colón-Emeric, C. (2010) Inpatient medication reconciliation at admission and discharge: A retrospective cohort study of age and other risk factors for medication discrepancies. The American Journal of Geriatric Pharmacotherapy, 8, 115-126.

Urquhart, C., Currell, R., Grant Maria, J. and Hardiker Nicholas, R. (2009) Nursing record systems: effects on nursing practice and healthcare outcomes. Cochrane Database of Systematic Reviews. Chichester, UK, John Wiley and Sons, Ltd.

van der Kam, W. J., de Johg, M. B., Tromp, T., Moorman, P. W., and van der Lei, J. (2001). Effects of electronic communication between the GP and the pharmacist. The quality of medication data on admission and after discharge. Fam Pract, 18(6).

Van Dijk, E. A., Drabbe, N. R., Kruijtbosch, M. and De Smet, P. A. (2006) Drug dosage adjustments according to renal function at hospital discharge. Ann Pharmacother, 40, 1254-60.

Van Ineveld, C. (2008) Planning for Patient Safety: Exploring strategies to reduce a person's risk of adverse events when transititioning between day hospital and community based care. Canadian Patient Safety Institute.

Van Walraven, C., Duke, S. M., Weinberg, A. L. and Wells, P. S. (1998) Standardized or narrative discharge summaries. Which do family physicians prefer? Can Fam Physician, 44, 62-9.

Van Walraven, C., Dhalla, I., Bell, C., Etchells, E. E., Stiell, I. G., Zarnke, K., Austin, P. and Forster, A. (2010). Derivation and validation of an index to predict early dealth or unplanned readmission after discharge from hospital to the community. Canadian Medical Association. Journal, 182(6).

Van Walraven, C., Laupacis, A., Seth, R. and Wells, G. (1999) Dictated versus database-generated discharge summaries: a randomized clinical trial. CMAJ, 160, 319-26.

Van Walraven, C., Mamdani, M., Fang, J. and Austin, P. C. (2004) Continuity of care and patient outcomes after hospital discharge. J Gen Intern Med, 19, 624-31.

Van Walraven, C., Oake, N., Jennings, A. and Forster, A. (2010) The association between continuity of care and outcomes: a systematic and critical review. Journal of Evaluation in Clinical Practice, 9999.

Van Walraven, C. and Rokosh, E. (1999) What is necessary for high-quality discharge summaries? Am J Med Qual, 14, 160-9.

Van Walraven, C., Seth, R., Austin, P. C. and Laupacis, A. (2002a) Effect of discharge summary availability during post-discharge visits on hospital readmission. J Gen Intern Med, 17, 186-92.

Van Walraven, C., Seth, R. and Laupacis, A. (2002b) Dissemination of discharge summaries. Not reaching follow-up physicians. Can Fam Physician, 48, 737-42.

Van Walraven, C., Taljaard, M., Bell, C. M., Etchells, E., Zarnke, K. B., Stiell, I. G. and Forster, A. J. (2008) Information exchange among physicians caring for the same patient in the community. CMAJ, 179, 1013-8.

Van Walraven, C. and Weinberg, A. L. (1995) Quality assessment of a discharge summary system. CMAJ, 152, 1437-42.

Victor, C. R., Healy, J., Thomas, A. and Seargeant, J. (2000) Older patients and delayed discharge from hospital. Health Soc Care Community, 8, 443-452.

Victor, C. R. and Vetter, N. J. (1985) The early readmission of the elderly to hospital. Age Ageing, 14, 37-42.

Vira, T., Colquhoun, M. and Etchells, E. (2006) Reconcilable differences: correcting medication errors at hospital admission and discharge. Quality and Safety in Health Care, 15, 122-126.

Walker, B. C. and Haslett, T. (2003) The dynamics of local rules in hospital admission processes. Aust Health Rev, 26, 98-106.

Walker Pc, Bernstein Sj and Jn, J. (2010) Medication reconciliation by pharmacists at discharge did not lead to reduced readmission rates. Journal of Clinical Outcomes Management, 17, 365-9.

Walker, P. C., Bernstein, S. J., Tucker Jones, J. N. T., Piersma, J., Kim, H.-W., Regal, R. E., Kuhn, L. and Flanders, S. A. (2009) Impact of a Pharmacist-Facilitated Hospital Discharge Program: A Quasi-Experimental Study. Arch Intern Med, 169, 2003-2010.

Watts, R. and Gardner, H. (2005) Nurses' perceptions of discharge planning. Nursing and Health Sciences, 7, 175-183.

Watts, R., Pierson, J. and Gardner, H. (2007) Co-ordination of the discharge planning process in critical care. J Clin Nurs, 16, 194-202.

Watts, R. J., Pierson, J. and Gardner, H. (2005) How do critical care nurses define the discharge planning process? Intensive and Critical Care Nursing, 21, 39-46.

Weingart, S. N., Davis, R. B. and Phillips, R. S. (1998) Patients discharged against medical advice from a general medicine service. J Gen Intern Med, 13, 568-71.

Weingart, S. N., Pagovich, O., Sands, D. Z., Li, J. M., Aronson, M. D., Davis, R. B., Bates, D. W. and Phillips, R. S. (2005) What Can Hospitalized Patients Tell Us About Adverse Events? Learning from Patient-Reported Incidents. Journal of general internal medicine, 20, 830-836.

Weiss, M. E., Piacentine, L. B., Lokken, L., Ancona, J., Archer, J., Gresser, S., Holmes, S. B., Toman, S., Toy, A. and Vega-Stromberg, T. (2007) Perceived readiness for hospital discharge in adult medical-surgical patients. Clin Nurse Spec, 21, 31-42.

Weiss, M. E., Ryan, P. and Lokken, L. (2006) Validity and reliability of the Perceived Readiness for Discharge After Birth Scale. J Obstet Gynecol Neonatal Nurs, 35, 34-45.

Weissman, J. S., Schneider, E. C., Weingart, S. N., Epstein, A. M., David-Kasdan, J., Feibelmann, S., Annas, C. L., Ridley, N., Kirle, L. and Gatsonis, C. (2008) Comparing Patient-Reported Hospital Adverse Events with Medical Record Review: Do Patients Know Something That Hospitals Do Not? Annals of Internal Medicine, 149, 100-108.

Were, M. C., Li, X., Kesterson, J., Cadwallader, J., Asirwa, C., Khan, B. and Rosenman, M. B. (2009) Adequacy of hospital discharge summaries in documenting tests with pending results and outpatient follow-up providers. J Gen Intern Med, 24, 1002-6.

Westbrook, J. I. and Gosling, A. S. (2002) The impact of point of care clinical systems on health care: a review of the evidence and a framework for evaluation. Kensington: Centre for Health Informatics, University of NSW.

Wilcock, M. and Lawrence, J. (2008) Medication at discharge: is enough information provided? Prescriber, 19, 19-22.

Williams, M. A. and Coleman, E. (2009) BOOSTing the hospital discharge. Journal of Hospital Medicine, 4, 209-210.

Wilson, R. M., Harrison, B. T., Gibberd, R. W. and Hamilton, J. D. (1999) An analysis of the causes of adverse events from the Quality in Australian Health Care Study. Medical Journal of Australia, 170, 411-415.

Wilson, S., Ruscoe, W., Chapman, M. and Miller, R. (2001) General practitioner-hospital communications: a review of discharge summaries. J Qual Clin Pract, 21, 104-8.

Witherington, E. M. A., Pirzada, O. M. and Avery, A. J. (2008) Communication gaps and readmissions to hospital for patients aged 75 years and older: observational study. Quality and Safety in Health Care, 17, 71-75.

Wong, J. D., Bajcar, J. M., Wong, G. G., Alibhai, S. M. H., Huh, J.-H., Cesta, A., Pond, G. R. and Fernandes, O. A. (2008) Medication Reconciliation at Hospital Discharge: Evaluating Discrepancies. Ann Pharmacother, 42, 1373-1379.

Wrenn, J. O., Stein, D. M., Bakken, S. and Stetson, P. D. (2010) Quantifying clinical narrative redundancy in an electronic health record. Journal of the American Medical Informatics Association, 17, 49-53.

Wright, J. (1972) Discharge summaries from general hospitals. Med J Aust, 1, 719.

Yang, L. H. and Huang, T. T. (2007) [A project to revise the patient needs rank assessment scale for discharge planning]. Hu Li Za Zhi, 54, 55-61.

7.2. Referral

Aarno Linnala, A. A. K. M. (2001). Specialists as consultants to GPs. Private sector services as an alternative way of organising consultant services in health care. Scandinavian Journal of Primary Health Care, 19(2), 90-94.

Ahrens, J. (2008). *Generating eReferrals: The effects of different incentive magnitudes to different parties on electronic referral rates.* Unpublished D.B.A., Golden Gate University, United States - California.

Akbari, A., Mayhew, A., Al-Alawi Manal, A., Grimshaw, J., Winkens, R., Glidewell, E., et al. (2008). Interventions to improve outpatient referrals from primary care to secondary care. Cochrane Database of Systematic Reviews(4).

Albertson, G. A., Lin, C. T., Kutner, J., Schilling, L. M., Anderson, S. N., & Anderson, R. J. (2000). Recognition of patient referral desires in an academic managed care plan frequency, determinants, and outcomes. J Gen Intern Med, 15(4), 242-247.

Al-Shahri, M., Sroor, M. Y., and Alsirafy, S. (2010). Referrals and Admissions to a Palliative Care Program in Saudi Arabia. The Journal of Supportive Onocology, 8(2), 78-81.

Angstman, K. M., Robrer, J. P., Adamson, S. M., and Chaudbry, R. M. (2009). Impact of e-Consults on Return Visits of Primary Care Patients. The Health Care Manager, 28(3), 253.

Anonymous. (2010). Leading Health Systems Select Allscripts for Care Management and Paperless Patient Referrals. PR Newswire, 2 Mar, 221.

Anonymous. (2009). Golden Living Selects Allscripts for Paperless Patient Referrals in Nearly 200 Skilled Nursing Facilities. PR Newswire, 6 Oct, 8.

Anonymous. (2008). Kindred Healthcare, Nation's Largest Post-Acute Healthcare Provider, Selects Allscripts Referral Management. PR Newswire, 20 Nov.

Anonymous. (2007). Fears over e-referrals. Pulse, Mar 1, 12.

Arendts, G., and Howard, K. (2010). The interface between residential aged care and the emergency department: a systematic review. Age Ageing, 39(3), 306-312.

Bajaj, Y., Charlett, S., Sethi, N., and Kelly, G. (2008). Ideal Clinic Letter for General Practitioners. Otorhinolarygologist, 2(2), 84-87.

Barr, F. (2010). Referral management centres criticised. eHealth Insider, Primary Care Retrieved 18th August 2010, from http://www.ehiprimarycare.com/news/6164/referral_management_centres_criticised

Behara, R., Wears, R., Perry, S., Eisenberg, E. M., Murphy, L., Vanderhoef, M., et al. (2005). A Conceptual Framework for Studying the Safety of Transitions in Emergency Care. Advances in Patient Safety, 2309-2321.

Belfrage, M., Chiminello, C., Cooper, D., and Douglas, S. (2008). Aged care home transfer-to-hospital envelope trial - public report on pilot study.

Bergus, G. R., Emerson, M., Reed, D. A., and Attaluri, A. (2006). Email teleconsultations: well formulated clinical referrals reduce the need for clinic consultation. Journal of Telemedicine and Telecare, 12(1), 33.

Berta, W., Barnsley, J., Bloom, J., Cockerill, R., Davis, D., Jaakkimainen, L. (2008). Enhancing continuity of information: essential components of a referral document. Can Fam Physician, 54(10), 1432-1433, 1433 e1431-1436.

Blesch, G. (2009). HHS: Don't call on self-referrals. Modern Healthcare, 39(13), 17.

Blundell, N., Clarke, A., and Mays, N. Interpretations of referral appropriateness by senior health managers in five PCT areas in England: a qualitative investigation. Quality and Safety in Health Care, 19(3), 182-186.

Bodek, S., Ghori, M., Edelstein, A., Reed, A., and MacFadyen, R. (2006). Contemporary referral of patients from community care to cardiology lack diagnostic and clinical detail. Int J Clin Pract, 60(5), 595-601.

Boehm, M., Winkelmayer, W. C., Arbeiter, K., Mueller, T., & Aufricht, C. Late referral to paediatric renal failure service impairs access to pre-emptive kidney transplantation in children. Arch Dis Child*, 95*(8), 634-638.

Bowling, A., and Redfern, J. (2000). The process of outpatient referral and care: the experiences and views of patients, their general practitioners, and specialists. Br J Gen Pract, 50(451), 116-120.

Bradfield, O. M. (2009). GP access to MRI: the Australian reality. Australian Health Review, 33(2).

Brauchler, M. M. C. C. (2010). Marketing Your Private Practice Successfully. Psychiatric Times, 27(2), 22.

Caplan, G. A., Ward, J. A., Brennan, N. J., Coconis, J., Board, N., and Brown, A. (1999). Hospital in the home: a randomised controlled trial. Med J Aust, 170(4), 156-160.

Charles, J., Fahridin, S., and Britt, H. (2008). Referrals to A andE. Australian Family Physican, 37(7).

Chen, A., Kushel, M., Grumbach, K., and Yee, H., Jr. (2010). A Safety-Net System Gains Efficiencies Through 'eReferrals' To Specialists. Health Affairs, 29(5), 969.

Chiminello, C. (2009). Aged Care Home Transfer-to-Hospital Envelope. Australian Resource Centre for Healthcare Innovations (ARCHI)

Coleman, E. A., Parry, C., Chalmers, S., and Min, S.-j. (2006). The Care Transitions Intervention: Results of a Randomized Controlled Trial. Arch Intern Med, 166(17), 1822-1828.

Coleman, E. A., Min, S. j., Chomiak, A., and Kramer, A. M. (2004). Posthospital Care Transitions: Patterns, Complications, and Risk Identification. Health Services Research, 39(5), 1449-1466.

Connors, A. (2010). GP referrals also ignored in Drogheda. Irish Medical Times, 44(12), 3

Crombie, A., Ham, J., Masman, K., and Mills, T. M. (2008). Planning for transition care. Aust Health Rev, 32(3), 505-508.

Crown, L. (2009). To a dear and probably glorious physician ... concerning a transfer dilemma. Tennessee medicine, 102(12).

Davies, G., Williams, A., Larsen, K., Perkins, D., Roland, M., and Harris, M. (2008). Coordinating primary health care: an analysis of the outcomes of a systematic review. *Medical Journal of Australia, 188*(8), S65.

Dennison, J., Eisen, S., Towers, M., and Clark, C. (2006). An effective electronic surgical referral system. Ann R Coll Surg Engl, 88, 554-556.

Devlin, P. (2010). On track to save over £1million. GP, 9 Apr, 62.

Doare, K. L., Banerjee, D., and Oldfield, M. (2009). Written Communication Between General Practitioners and Hospitals, an Analysis. The West London Medical Journal, 1, 67-75.

Drieskens, K., Bilsen, J., Van den Block, L., Deschepper, R., Bauwens, S., Distelmans, W., et al. (2008). Characteristics of Referral to a Multidisciplinary Pallative Home Care Team. Journal of Palliative Care, 24(3).

Druss, B. G., von Esenwein, S. A., Compton, M. T., Rask, K. J., Zhao, L., and Parker, R. M. A Randomized Trial of Medical Care Management for Community Mental Health Settings: The Primary Care Access, Referral, and Evaluation (PCARE) Study. Am J Psychiatry, 167(2), 151-159.

Dunn, C. R. F. (2009). How you can improve the referral management process. *MGMA Connexion, 9*(4), 31.

Dunn, M., & Gwinnutt, C. (2007). Critical care in the emergency department: patient transfer. Emergency medicine journal : EMJ, 24(1), 40-44.

Eaton, A. K., Furniss, S. J., Snoad, R. J., and Newman, H. N. (2001). An assessment of the quality of referral letters sent to a specialist periodontist during a nine month period. Journal of the International Academy of Periodontology, 3(1), 7-13.

Edwards, N., and Roelofs, S. (2005). Participatory Approaches in the Co-Design of a Comprehensie Referral System. The Canadian Nurse, 101(8).

Epstein, A. P., and Rosenquist, J. M. D. P. (2010). Tell Me Something New: Report Cards and the Referring Physician. *The American Journal of Medicine, 123*(2), 99.

Esquivel, A. (2008). CHARACTERIZING, ASSESSING AND IMPROVING HEALTHCARE REFERRAL COMMUNICATION.

Evans, E. (2009). The Torfaen referral evaluation project. Qual Prim Care, 17(6), 423-429.

Farrell, L. (2010). The best weapon in a GPs armoury is 'referral'. GP, 26 Mar, 30.

Faulkner, A., Mills, N., Bainton, D., Baxter, K., Kinnersley, P., Peters, T. J., et al. (2003). A systematic review of the effect of primary care-based service innovations on quality and patterns of referral to specialist secondary care. Br J Gen Pract, 53(496), 878-884.

Feldman, S. (2009). The referral dance: Improving the intervace between primary care practitioners and specialists caring for patients with dementia. American Journal of Alzheimer's Disease and Other Dementias., 23(6), 513-515.

Fenlon, M., Glick, S., and Sherriff, M. (2008). An audit of letters of referral to a prosthodontic department in a dental teaching hospital. Eur J Prozthodont Restor Dent, 16(3), 128-131.

(2006). Interface between residential aged care facilities and a teaching hospital emergency department in Western Australia. Medical Journal of Australia, 184(9).

Fischer, B., Martinez, E., Driscoll, M., and Conway, T. (2010). Chicago: Using Evidence-Based Rules To Make Smarter Referrals. Health Affairs, 29(5), 972.

Foley, F., Selzer, R., and McGartland, M. (2009). Designing a referral form. Australas Psychiarty, 17(3), 247-248.

Foot, C., Naylor, C., and Imison, C. (2010). The quality of GP diagnosis and referral: The King's Fund, London, 12 Aug.

Gallagher, and O'Mahony. (2008). STOPP (Screening Tool of Older Persons' potentially inappropriate Prescriptions): application to acutely ill elderly patients and comparison with Beers' criteria. Age and Ageing, 37(6), 673.

Gandhi, T. K., Sittig, D. F., Franklin, M., Sussman, A. J., Fairchild, D. G., and Bates, D. W. (2000). Communication breakdown in the outpatient referral process. J Gen Intern Med, 15(9), 626-631.

Garasen, H., and Johnsen, R. (2007). The quality of communication about older patients between hospital physicians and general practitioners: a panel study assessment. BMC Health Services Research, 1.

Gibson, D. (2002). The interface between hospital and residential aged care. Aust Health Rev, 25(5), 132-135.

Gideon, A. C. (2006). Hospital in the home: a concept under question. *Medical Journal of Australia, 184*(12), 599.

Gjessing, K., and Faresjo, T. (2009). Exploring factors that affect hospital referral in rural settings: a case study from Norway. Rural and remote health, 9, 975.

Glance, L., Osler, T., Mukamel, D., and Dick, A. (2008). Impact of the Present-on-Admission Indicator on Hospital Quality Measurement. Experience with the Agency for Healthcare Research and Quality (AHQR) Inpatient Quality Indicators. Med Care, 46, 112-119.

Glaser, J., Henley, D., Downing, G., and Brinner, K. M. (2008). Advancing Personalized Health Care through Health Information Technology: An update from the American Health Information Community's Personalized Health Care Workgroup. Journal of the American Medical Informatics Association, 15(4), 391-396.

Go, S., and Watson, W. (1997). Enchancing physician-physician communication skills. Academic Medicine, 72(11), 934.

Gowers, S. G., and Rowlands, L. (2005). Inpatient services. Current Opinion in Psychiatry, 18(4), 445.

Gray, L., and Dakin, L. (2010). Position Statement No 18. Older persons in acute hospitals awaiting transfer to a residential aged care facility, ANZGSM, 4 May.

Gray, J. T., and Walker, A. (2009). Is referral to emergency care practitioners by general practitioners in-hours effective? Emergency medicine journal : EMJ, 26, 611-612.

Grol, R., Rooijackers-Lemmers, N., van Kaathoven, L., Wollersheim, H., and Mokkink, H. (2003). Communication at the interface: do better referral letters produce better consultant replies? British Journal of General Practice, 53, 217-219.

Harris , M., Giles, A., and O'Toole, B. (2002). Communication across the divide: a trial of structured communication between general practitioners and emergency departments. Australian Family Physican, 31(2), 197-200.

Harris, S. (2007). Pay for referrals may be illegal as well as unethical. American Medical News, 51(43).

Hatam, N. P., Askarian, M. M. M., Sarikhani, Y. M., and Ghaem, H. M. (2010). Necessity of Admissions in Selected Teaching University Affiliated and Private Hospitals during 2007 in Shiraz, Iran. Archives of Iranian Medicine, 13(3), 230.

Heimly, V. (2009). Electronic Referrals in Healthcare: A Review. In K. Adlassnig (Ed.), Medical Informatics in a United and Healthy Europe: IOS Press.

Hess, B. J., Lynn, L. A., Holmboe, E. S., and Lipner, R. S. (2009). Toward Better Care Coordination Through Improved Communication with Referring Physicians. Academic Medicine, 84(10).

Horwitz, L. I., Meredith, T., Schuur, J. D., Shah, N. R., Kulkarni, R. G., and Jenq, G. Y. (2006). Dropping the Baton: A Qualitative Analysis of Failures during the Transition from Emergency Department to Inpatient Care. Annals of Emergency Medicine, 53(6), 701.

Ireland, T. PCT drops plan to pay GPs for referrals to ISTC. GP, 5 Feb, 13.

Ireland, T. (2010). Points system to ration GP referrals. GP, 26 Mar, 16.

Izadi, M., Gill, D. S., and Naini, F. B. (2010). A study to assess the quality of information in referral letters to the orthodontic department at Kingston Hospital, Surrey. Prim Dent Care, 17(2), 73-77.

Jaatinen, P. T., Aarnio, P., Remes, J., Hannukainen, J., and Koymari-Seilonen, T. (2002). Teleconsultation as a replacement for referral to an outpatient clinic. *Journal of Telemedicine and Telecare, 8*(2), 102-106.

Jenner, D., Williamson, S., and Quinn, K. (2010). Referral rates and NHS pension benefits. GP, 64.

Jiwa, M., Gordon, M., Arnet, H., Ee, H., Bulsara, M., and Colwell, B. (2008). Referring patients to specialists: A structured vignette survery of Australian and British GPs. BMC Family Practice, 9(2).

Johnson, C., Girgis, A., Paul, C., Currow, D., Adams, J., and Aranda, S. (2010). Australian palliative care providers' perceptions and experiences of the barriers and facilitators to palliative care provision. Support Care Cancer.

Johnson, L. J. (2009). Referrals don't let you off the hook. Medical Economics, 86(13), 52.

Kennedy, J. L. (2008). The art of referrals. *Tribology and Lubrication Technology, 64*(6), 91-91.

Kim, Y., Chen, A. H., Keith, E., Yee Jr, H. F., and Kushel, M. B. (2009). Not Perfect, but Better:Primary Care Providers' Experiences with Electronic Referrals in a Safety Net Health System. Journal General Internal Medicine, 24(5), 614-619.

King, N., Bailey, J., and Newton, P. (1994). Analysing general practitioners' referral decisions. I. Developing an analytical framework. Fam Pract, 11(1), 3-8.

Kinnersley, P., Rapport, F. M., Owen, P., and Stott, N. (1999). In-house referral: a primary care alternative to immediate secondary care referral? Family Practice, 16(6).

Kripalani, S., LeFevre, F., Phillips, C. O., Williams, M. V., Basaviah, P., and Baker, D. W. (2007). Deficits in Communication and Information Transfer Between Hospital-Based and Primary Care Physicians: Implications for Patient Safety and Continuity of Care. JAMA, 297(8), 831-841.

Lancelot, C. (2008). I'm not navigating the cross-referral maze. GP, 16 May, 19.

Lang, E., Afilalo, M., Vandal, A., Boivin, J., Xue, X., Colacone, A., et al. (2006). Impact of an electronic link between the emergency department and family physicians: a randomized controlled trial. Canadian Medical Association. Journal, 174(3), 313

Le Doare, K., Banerjee, D., & Oldfield, M. (2009). Written Communication Between General Practitioners and Hospitals, an Analysis. The West London Medical Journal, 1, 67-75.

Leslie, H., Leslie, H., Frankel, H., Grady, H., Rowed, D., and Hayworth, G. (2006). *e-Referral Architecture Framework Project*. Melbourne: Victorian Department of Human Services.

Lexchin, J. (2009). More than the Diagnosis. In C. F. P. V. July (Ed.) (pp. 689).

Lossius, H. M., Kristiansen, T., Ringdal, K. G., and Rehn, M. (2010). Inter-hospital transfer: the crux of the trauma system, a curse for trauma registries. Scandinavian journal of trauma, resuscitation and emergency medicine, 18(15).

M2 Presswire. (2004). Metastorm: Metastorm delivers electronic referrals process to local GPs in Cornwall; Patients benefit from electronic processes within local practices, 15 Mar, 1.

McGlade, K., Bradley, T., Murphy, G., and Lundy, G. (1988). Referrals to hospital by general practitioners: a study of compliance and communication. BMJ, 297.

Menon, N. (2006). Referral Letters. Ann R Coll Surg Engl, 88(6), 604-608.

Monik, L. A. (2007). Repatriation of patients--a process to ensure a safe patient transfer. Healthcare Quarterly, 10(4), 80-83.

Moore, C., Wisnivesky, J., Williams, S., and McGinn, T. (2003). Medical Errors Related to Discontinuity of Care from an Inpatient to an Outpatient Setting. Journal of General Internal Medicine, 18(8), 646-651.

Mukherjee, S., Mantgani, A., and Roohi, S. (2010). Bringing down A andE attendances. GP, 28 May, 54.

Murray, M. (2002). Reducing waits and delays in the referral process. Family Practice Management, 9(3), 39.

Navarro, A. E., Wilber, K., and Silverstein, M. (2008). Improving Health Care Transitions: Targeting Resources to Vulnerable Elders. The Gerontologist, 48(Health Module).

Newman, M. (2007). PCT set to divert all GP referrals. Hospital Doctor, 25 Jan, 2.

Norwell, N. (2007). HOW TO... deal with referral management centres. GP, 2 Mar, 52.

Nicholson, C., Jackson, C. L., Wright, B., Mainwaring, P., Holliday, D., Lankowski, A., et al. (2006). Online referral and OPD booking from the GP desktop. Australian Health Review, 30(3).

Patel, S., and Dubinsky, I. (2002). Outcomes of referrals to the ED by family physicians. Am J Emerg Med, 20(3), 144-150.

Patrick, J., and Puterman, M. L. (2007). Improving resource utilization for diagnostic services through flexible inpatient scheduling: A method for improving resource utilization. Journal of the Operational Research Society, 58, 235-245.

Payne, S., Kerr, C., Hawker, S., Hardey, M., and Powell, J. (2002). The communication of information about older people between health and social care practitioners. Age and Ageing, 31, 107-117.

Peng Ong, S., Lim, L.-T., Barnsley, L., and Read, R. (2006). General Practitioners' referral letters - do they meet the expectations of gastroenterologists and rheumatologists? Australian Family Physican, 35(11).

Pietz, K., Byrne, M., Daw, C., and Petersen, L. (2007). The Effect of Referral and Transfer Patients on Hospital Funding in a Capitated Health Care Delivery System. Med Care, 45, 951-958.

Pitterman, L., and Koritsas, S. (2005). Personal Viewpoint Part II. Gerneral practioner-specialist referral process. Internal Medicine Journal, 35, 491-496.

Pothier, D. D. (2005). Referral letters: are we prioritizing consistently? The Journal of Laryngology and Otology, 119(5).

Price, A., and Williams, A. (2003). Primary care nurse practitioners and the interface with secondary care: a qualitative study of referral practice. Journal of Interprofessional Care, 17(3).

Ramrakha, S., and Giles, A. (2001). Take a letter ... an audit of GP referrals in south west Sydney. Australian Family Physican, 30(4).

Reder, S., Hedrick, S., Guihan, M., and Miller, S. (2009). Barriers to home and community-based service referrals: the physician's role. Gerontology and Geriatrics Education, 30(1), 21-33.

Reponen, J., Marttila, E., Paajanen, H., and Turula, A. (2004). Extending a multimedia medical record to a regional service with electronic referral and discharge letters. *Journal of Telemedicine and Telecare, 10*, 81.

Richards, B. (2002). Patient safety series: tracking and reminder systems. ACOG clinical review, 7(9), 1.

Roland, M. O., Bartholomew, J., Morrell, D. C., McDermott, A., and Paul, E. (1990). Understanding Hospital Referral Rates: A User's Guide. BMJ: British Medical Journal, 301(6743), 98-102.

Rosmulder, R., Krabbendam, K., and Luitse, J. (2006). Planning emergency patients: An attempt to change the nature of the emergency department. Eur J Emerg Med, 13(6), 377-379.

Rowlands, G. (1997). 'Within practice' review of referrals significantly alters referral rates--a pilot project. The British Journal of General Practice, 47(415), 124-125.

Rowlands, G., Willis, S., and Singleton, A. (2001). Referrals and relationships: in-practice referrals meetings in a general practice. Family Practice, 18(4).

Saul, N. W., David, R., Zachary, T., and Daniel, Z. S. (2006). Who Uses the Patient Internet Portal? The PatientSite Experience. *Journal of the American Medical Informatics Association, 13*(1), 91.

Scully, N., Chu, L., Siriwardena, D., Wormald, R., and Kotecha, A. (2009). The quality of optometrists' referral letters for glaucoma. Ophthal. Physiol. Opt., 29, 26-31.

Schulmeister, L. R. M. A.-B. O. F. (2008). Patient Misidentification in Oncology Care. Clinical Journal of Oncology Nursing, 12(3), 495.

Schattner, P., Mathews, M., and Pinskier, N. (2008). Promoting e-communication. Lessons from a feasibility study. Australian Family Physican, 37(3).

Shahiron, S. (2008). Refer with ease. Australian Doctor, Sept, 5.

Smith, A. C., Isles, A., McCrossin, R., Van der Westhuyzen, J., Williams, M., Woollett, H., et al. (2001). The point-of-referral barrier--a factor in the success of telehealth. J Telemed Telecare, 7 Suppl 2, 75-78.

Shea, S. and Hripcsak G. (2010). Accelerating the use of electronic health records in physician practices. N Engl J Med, **362**, 192–5.

Smith, P. (2010). GPs' referral rancour. Australian Doctor, Jan, 1-2.

Snape, J., and Santharam, M. G. (1997). Inappropriate acute admissions from nursing and residential homes. Age Ageing, 26(4), 320-321.

Stiell, A., Forster, A. J., Stiell, I. G., & van Walraven, C. (2003). Prevalence of information gaps in the emergency department and the effect on patient outcomes. Canadian Medical Association. Journal, 169(10), 1023-1028.

Stille, C. M. M., Primack, W. M., McLaughlin, T. S., & Wasserman, R. M. M. (2007). Parents as Information Intermediaries Between Primary Care and Specialty Physicians. Pediatrics, 120(6), 1238.

St Noble, V. J., Davies, G., and Bell, D. (2008). Improving continuity of care in an acute medical unti: inital outcomes. Q J Med, 101, 529-533.

Starfield, B. (2010). Primary care, specialist care, and chronic care: can they interlock? Chest, 137(1), 8-10.

Swinkels, A., and Mitchell, T. (2009). Delayed transfer from hospital to community settings: the older person's perspective. Health Soc Care Community, 17(1), 45-53.

Taggarshe, D., Haldipur, N., and Singh, S. (2006). Generic outpatient referrals: why don't GPs make them? Journal of Public Health 28(3), 218-220.

Tanday, S. (2009). Audit shows GPs refer fast in suspected cancer cases. GP, 4 Dec, 17.

Taylor, J., Edwards, J., Kelly, F., and Fielke, K. (2009). Improving transfer of mental health care for rural and remote consumers in South Australia. Health and Social Care in the Community, 17(2), 216-224.

Thompson, G. (2007). Consent and information giving in radiotherapy. Journal of Radiotherapy in Practice, 6, 217-223.

Tjerbo, T. (2010). Does competition among general practitioners increase or decrease the consumption of specialist health care? Health Economics, Policu and Law, 5, 53-70.

Toleman, J., and Barras, M. (2007). General Practitioner referral letters: are we getting the full picture? Internal Medicine Journal, 37(7), 510-511.

Vafeas, C. (2000). Referral Criteria. Nursing Standard, 14(45).

Vahabi, M. (2007). The impact of health communication on health-related decision making. Health Education, 107(1), 27.

Valintus Pty Ltd. (2009). Referrals Environmental Scan. Sydney: National E-Health Transition Authority, 22 Nov.

Vardy, D., Freud, T., Sherf, M., Spilberg, O., Goldfarb, D., Cohen, A., Mor-Yosef, S. and Shvartzman, P. (2008). A Co-payment for Consultant Services: Primary Care Physicians' Referral Actualization. Journal of Medical Systems, 32(1), 37-41.

Vedsted, P., and Christensen, M. (2001). The effect of an out-of-hours reform on attendance at casualty wards. The Danish example. Scand J Prim Health Care, 19, 95-98.

Victorian Department of Human Services. (2006). E-referral architecture framework. North Sydney: Ocean Informatics, October(1.3.1).

Walshe, C., Chew-Graham, C., Todd, C., and Caress, A. (2008). What influences referrals within community palliative care services? A qualitative case study. Social Science and Medicine, 67(1), 137.

Weiss, G. (2003). How to cut patient with time. Medical Economics, 80(19), 75-82.

White, P. (2004). Copying referral letters to patients: prepare for change. Patient Educ Couns, 54(2), 159-161.

Woolford, S., Clark, S., Gebremariam, A., Davis, M., and Freed, G. To Cut or Not to Cut: Physicians' Perspectives on Referring Adolescents for Bariatric Surgery. Obesity Surgery, 20(7), 937-942.

Wootton, R., Harno, K., and Reponen, J. (2003). Organizational aspects of e-referrals. J Telemed Telecare, 9 Suppl 2, S76-79.

Yatto, R. (2009). An Analog Doctor in a Digital World. American Journal of Gastroenterology, 104(4), 814-815.

Zanaboni, P., Scalvini, S., Bernocchi, P., Borghi, G., Tridico, C., and Masella, C. (2009). Teleconsultation service to improve healthcare in rural areas: acceptance, organizational impact and appropriateness. BMC Health Services Research, 9(238).

7.3. Admission

Ackermann, R. J., Kemle, K. A., Vogel, R. L., and Griffin, J. R. C. (1998). Emergency Department Use by Nursing Home Residents. Annals of Emergency Medicine, 31(6), 749-757.

Adams, M. (2005). Medication Errors Often Occur Upon Hospital Admission. Retrieved 12th July 2010, 2010, from http://www.parknicollet.com/healthadvisor/healthTopics/?chunkiid=90996

Adrienne, S., Saima, I., Fiona, R., Michael, U., and Gillian, R. (2009). Patients, perspectives of the doctor, and patient relationship and information giving across a range of literacy levels. Patient education and counseling, 75(1), 114-120.

Allder, S., Silvester, K., and Walley, P. (2010). Managing capacity and demand across the patient journey. Clinical Medicine, 10(1), 13-15.

Amarasingham, R., Swanson, T. S., Treichler, D. B., Amarasingham, S. N., and Reed, W. G. (2010). A rapid admission protocol to reduce emergency department boarding times. Quality and Safety in Health Care, 19(3), 200-204.

Ambery, P., and Donald, I. P. (2000). Variation in general practice medical admission rates for elderly people. Journal of Public Health Medicine, 22(3).

Andrews-Hall, S., Howe, A., and Robinson, A. (2007). The dynamics of residential aged care in Australia: 8-year trends in admission, separations and dependency. Australian Health Review, 31(4).

Anonymous. (2010). Health and Medicine; Research findings from University of Queensland update understanding of health and medicine. *Physician Business Week*, 127.

Anonymous. (2009). Nurse led reforms to save lives and dollars. Australian Nursing Journal, 17(1), 5.

Anonymous. (2006). broad effort to detect adverse event needed to minimize patient harm. Healthcare Financial Management, 60(3), 128.

Arendts, G., & Howard, K. (2010). The interface between residential aged care and the emergency department: a systematic review. Age Ageing, 39(3), 306-312.

Ashton, C. M., Junco, D. J. D., Souchek, J., Wray, N. P., and Mansyur, C. L. (1997). The Association between the Quality of Inpatient Care and Early Readmission: A Meta-Analysis of the Evidence. Medical Care, 35(10), 1044-1059.

Ashton, C. M., Kuykendall, D. H., Johnson, M. L., Wray, N. P., and Wu, L. (1995). The Association between the Quality of Inpatient Care and Early Readmission. Ann Intern Med, 122(6), 415-421.

Ashton, C. M., and Wray, N. P. (1996). A conceptual framework for the study of early readmission as an indicator of quality of care. Social Science and Medicine, 43(11), 1533-1541.

Awad, I., Moore, M., Rushe, C., Elburki, A., O'Brien, K., and Warde, D. (2004). Unplanned hospital admission in children undergoing day-case surgery. European Journal of Anaesthesiology, 21(5), 379.

Bahl, V., Thompson, M., Kau, T.-Y., Hu, H. M., and Campbell, D. (2008). Do the AHRQ Patient Safety Indicators Flag Conditions That Are Present at the Time of Hospital Admission? Med Care, 46, 516-522.

Baker, D. W., Gazmararian, J. A., Williams, M. V., Scott, T., Parker, R. M., Green, D., et al. (2002). Functional health literacy and the risk of hospital admission among Medicare managed care enrollees. Am J Public Health, 92(8), 1278-1283.

Barrett, B., Way, C., McDonald, J., and Parfrey, P. (2005). Hospital utilization, efficiency and access to care during and shortly after restructuring acute care in Newfoundland and Labrador. Journal of Health Services Research and Policy, 10, S2_31.

Bartlett, G. P., Blais, R. P., Tamblyn, R. P., Clermont, R. M., and MacGibbon, B. P. (2008). Impact of patient communication problems on the risk of preventable adverse events in acute care settings. Canadian Medical Association. Journal, 178(12), 1555.

Bean, P., and Waldron, K. (1995). Readmission study leads to continuum of care. Nursing Management, 26(9), 65.

Behara, R., Wears, R., Perry, S., Eisenberg, E. M., Murphy, L., Vanderhoef, M., et al. (2005). A Conceptual Framework for Studying the Safety of Transitions in Emergency Care. Advances in Patient Safety, 2309-2321.

Benbassat, J., and Taragin, M. (2000). Hospital readmissions as a measure of quality of health care. Archives of Internal Medicine, 160(8), 1074.

Ben-Tovim, D., Dougherty, M., O'Connell, T., and McGrath, K. (2008). Patient journeys: the process of clinical redesign. Medical Journal of Australia, 188(6), S14.

Bhattacharya, A., and Zayas-Castro, J. (2007). Managing Patient Flow in Inpatient Services. IIE Annual Conference. Proceedings, 511.

Bisognano, M., and Boutwell, A. (2009). Improving Transitions to Reduce Readmissions. Frontiers of Health Services Management, 25(3), 3.

Bloor, G. (2006). Developing inter-agency collaboration for older patients needing rehabilitation. Australian Health Review, 30(3), 362.

Bodenheimer, T. M. M., and Berry-millett, R. B. (2009). Follow the Money -- Controlling Expenditures by Improving Care for Patients Needing Costly Services. *The New England Journal of Medicine, 361*(16), 1521.

Boockvar, K., Fishman, E., Kyriacou, C. K., Monias, A., Gavi, S., and Cortes, T. (2004). Adverse Events Due to Discontinuations in Drug Use and Dose Changes in Patients Transferred Between Acute and Long-term Care Facilities. Arch Intern Med, 164(5), 545-550.

Bowers, L., Clark, N., and Callaghan, P. (2003). Multidisciplinary Reflections on Assessment for Compulsory Admission: The Views of Approved Social Workers, General Practitioners, Ambulance Crews, Police, Community Psychiatric Nurses and Psychiatrists. British Journal of Social Work, 33(7), 961-968.

Brailsford, S. C., Lattimer, V. A., Tarnaras, P., and Turnbull, J. C. (2004). Emergency and on-demand health care: modelling a large complex system. The Journal of the Operational Research Society, 55(1), 34.

Braitberg, G. (2007). Emergency department overcrowding: dying to get in? *Medical Journal of Australia, 187*(11/12), 624.

Brown, J., and Gray, C. S. (1998). Stemming the tide of readmissions: Patient, practice or practitioner? Reviews in Clinical Gerontology, 8(2), 173-181.

Callen, J. L., Blundell, L., and Prgomet, M. (2008). Emergency Department use in a rural Australian setting: are the factors prompting attendance appropriate? Australian Health Review, 32(4).

Campbell, S. G., and Sinclair, D. E. (2004). Strategies for managing a busy emergency department. CJEM : Journal of the Canadian Association of Emergency Physicians, 6(4), 271.

Caplan, G. A., Meller, A., Squires, B., Chan, S., and Willett, W. (2006). Advance care planning and hospital in the nursing home. Age and Ageing, 35, 581-585.

Caplan, G. A., Ward, J. A., Brennan, N. J., Coconis, J., Board, N., and Brown, A. (1999). Hospital in the home: a randomised controlled trial. Med J Aust, 170(4), 156-160.

Carroll, V. (2007). The Adult Patient Assessment Tool and care plan. Australian Nursing Journal, 14(7), 29.

Cara, B. L. (2007). In the Dark -- The Case for Electronic Health Records. *The New England Journal of Medicine, 356*(24), 2454.

Cavalcanti, M. T., Dahl, C. M., Carvalho, M. C., and Valencia, E. (2009). Criteria for admission and continuity of health care in psychosocial healthcare services, City of Rio de Janeiro, Southeastern Brazil. Rev Saude Publica, 43 Suppl 1, 23-28.

Charles, V., Graham, N., and Maria, W. (2001). Adverse events in British hospitals: Preliminary retrospective record review. *British Medical Journal, 322*(7285), 517.

Cohen, A., Restuccia, J., Shwartz, M., Drake, J., Kang, R., Kralovec, P., et al. (2008). A Survey of Hospital Quality Improvement Activities. *Medical Care Research and Review, 65*(5), 571.

Corbett, H. M., Lim, W. K., Davis, S. J., and Elkins, A. M. (2005). Care coordination in the Emergency Department: improving outcomes for older patients. Australian Health Review, 29(1), 43.

Cornish, P. L., Knowles, S. R., Marchesano, R., Tam, V., Shadowitz, S., Juurlink, D. N., et al. (2005). Unintended Medication Discrepancies at the Time of Hospital Admission. Arch Intern Med, 165(4), 424-429.

Corrigan, J. M., and Martin, J. B. (1992). Identification of factors associated with hospital readmission and development of a predictive model. Health Serv Res, 27(1), 81-101.

Cortese, D. M., and Korsmo, J. M. (2009). Putting U.S. Health Care on the Right Track. *The New England Journal of Medicine, 361*(14), 1326.

Cowie, M. R. ,Hospital at home, care shows similar mortality and subsequent hospital admissions to hospital care for older patients with acutely decompensated chronic heart failure. Evidence Based Medicine, 15:, 9-10.

Critical Care Med. (1999). Guidelines for intensive care unit admission, discharge, and triage. Task Force of the American College of Critical Care Medicine, Society of Critical Care Medicine. Critical Care Medicine, 27(3), 633-638.

Crombie, A., Ham, J., Masman, K., & Mills, T. M. (2008). Planning for transition care. Aust Health Rev, 32(3), 505-508.

Crotty, M., Rowett, D., Spurling, L., Giles, L. C., and Phillips, P. A. (2004). Does the addition of a pharmacist transition coordinator improve evidence-based medication management and health outcomes in older adults moving from the hospital to a long-term care facility? Results of a randomized, controlled trial. The American Journal of Geriatric Pharmacotherapy, 2(4), 257-264.

Davies, N. P. (2010). Improving self-management for patients with long-term conditions. *Nursing Standard, 24*(25), 49.

de Bruin, A. M., and van Rossum, A. C. (2007). Modeling the emergency cardiac in-patient flow: an application of queuing theory. Health Care Manag Sci, 10, 125-137.

Deng, G., Weber, W., Sood, A., and Kemper, K. J. (2010). Research on Integrative Healthcare: Context and Priorities. EXPLORE: The Journal of Science and Healing, 6(3), 143-158.

Dennison, J., Eisen, S., Towers, M., & Clark, C. (2006). An effective electronic surgical referral system. Ann R Coll Surg Engl, 88, 554-556.

Dinsdale, P. (2006). Meet you at the door. Nursing Standard, 20(38).

Dobrzanska, L. (2004). Readmissions - An evaluation of reasons for unplanned readmissions of older people: A United Kingdom and international studies literature review. Quality in Ageing, 5(4), 20.

Douketis, J. D. (1999). Incorporating preventive care recommendations into clinical practice: How do we bridge the gap? Canadian Medical Association. Journal, 160(8), 1171.

Duffield, C., Diers, D., Aisbett, C., and Roche, M. (2009). Churn: Patient Turnover and Case Mix. Nursing Economics, 27(3).

Dunn, M., and Gwinnutt, C. (2007). Critical care in the emergency department: patient transfer. Emergency medicine journal : EMJ, 24(1), 40-44.

Dutton, K., Hedger, N., Wills, S., Brown, D., and Davies, P. (2003). Prevent medication errors on admission. Clinical Governance, 8(2), 128.

Egol, A. (1999). Guidelines for intensive care unit admission, discharge, and triage. Critical Care Medicine, 27(3), 633-638.

Eisenberg, E. M., Murphy, A. G., Sutcliffe, K., Wears, R., Schenkel, S., Perry, S., et al. (2005). Communication in Emergency Medicine: Implications for Patient Safety. Communication Monographs, 72(4), 390-413.

Elliott, M. (2006). Readmission to intensive care: a review of the literature. Australian Critical Care, 19(3), 96.

Elliott, R., Thornton, J., Webb, A., Dodd, M., and Tully, M. (2005). Comparing costs of home- versus hospital-based treatment of infections in adults in a specialist cystic fibrosis center. International Journal of Technology Assessment in Health Care, 21(4), 506.

Emerson, J. (2009). *Analysis of administrative data as an accurate indicator of the quality of care or patient safety delivered by a healthcare institution.* Unpublished M.S., The College of St. Scholastica, United States -- Minnesota.

Ensminger, S. A., Morales, I. J., Peters, S. G., Keegan, M. T., and et al. (2004). The Hospital Mortality of Patients Admitted to the ICU on Weekends*. Chest, 126(4), 1292.

Esmail, A., Quayle, J. A., and Roberts, C. (2000). Assessing the appropriateness of paediatric hospital admissions in the United Kingdom. Journal of Public Health Medicine, 22(2).

Finn, J. C., Filcker, L., Mackenzie, E., Jacobs, I. G., Fatovich, D. M., Drummond, S., et al. (2006). Interface between residential aged care facilities and a teaching hospital emergency department in Western Australia. Medical Journal of Australia, 184(9).

Fleischer, S., Berg, A., Zimmermann, M., Wuste, K., and Behrens, J. (2009). Nurse-patient interaction and communication: A systematic literature review. Journal Public Health, 17, 339-353.

Forster, A. J., Asmis, T. R., Clark, H. D., Al Saied, G., Code, C. C., Caughey, S. C., et al. (2004). Ottawa Hospital Patient Safety Study: incidence and timing of adverse events in patients admitted to a Canadian teaching hospital. CMAJ, 170(8), 1235-1240.

Friedman, B. P., Encinosa, W. P., Jiang, H. P., and Mutter, R. P. (2009). Do Patient Safety Events Increase Readmissions? Medical Care, 47(5), 583.

Gallagher, and O'Mahony. (2008). STOPP (Screening Tool of Older Persons' potentially inappropriate Prescriptions): application to acutely ill elderly patients and comparison with Beers' criteria. Age and Ageing, 37(6), 673.

Garasen, H., and Johnsen, R. (2007). The quality of communication about older patients between hospital physicians and general practitioners: a panel study assessment. BMC Health Services Research, 1.

Garg, L., McClean, S., Meenan, B., and Millard, P. (2010). A non-homogeneous discrete time Markov model for admission scheduling and resource planning in a cost or capacity constrained healthcare system. Health Care Management Science, 13(2), 155.

Garrett, P., Forero, R., Dickson, H., and Whelan, A. (2008). How are language barriers bridged in acute hospital care? The tale of two methods of data collection. Australian Health Review, 32(4), 755.

Garrouste-Orgeas, M., Bounmendil, A., Pateron, D., Aergerter, P., Somme, D., Simon, T., et al. (2009). Selection of intensive care unit admission criteria for patients aged 80 years and over and compliance of emergency and intensive care unit physicians with the selected criteria: An observational, mulicenter, prospective study. Critcial Care Medine, 37(11).

Gerard, K., Lattimer, V., Turnbull, J., Smith, H., George, S., Brailsford, S., et al. (2004). Reviewing emergency care systems 2: measuring patient preferences using a discrete choice experiment. Emerg Med J, 21(6), 692-697.

Giaccone, M. (2004). *Near misses associated with medication administration in a PICU.* Unpublished M.S., Northern Kentucky University, United States -- Kentucky.

Gibson, D. (2002). The interface between hospital and residential aged care. Aust Health Rev, 25(5), 132-135.

Glance, L., Osler, T., Mukamel, D., and Dick, A. (2008). Impact of the Present-on-Admission Indicator on Hospital Quality Measurement. Experience with the Agency for Healthcare Research and Quality (AHQR) Inpatient Quality Indicators. Med Care, 46, 112-119.

Glazier, R. M., and Redelmeier, D. M. (2010). Building the Patient-Centered Medical Home in Ontario. *JAMA, 303*(21), 2186.

Goldfield, N. M. (2010). Strategies to decrease the rate of preventable readmission to hospital. Canadian Medical Association. Journal, 182(6), 538.

Goldfield, N. M., McCullough, E. M., Hughes, J. M., Tang, A., Eastman, B. M., Rawlins, L., et al. (2008). Identifying Potentially Preventable Readmissions. Health Care Financing Review, 30(1), 75.

Gorodeski, E. M. M., Starling, R. M. M., and Blackstone, E. M. (2010). Are All Readmissions Bad Readmissions? *The New England Journal of Medicine, 363*(3), 297.

Gowers, S. G., and Rowlands, L. (2005). Inpatient services. Current Opinion in Psychiatry, 18(4), 445.

Graber, D. (2009). Organizational and Individual Perspectives on Caring in Hospitals. Journal of Health and Human Services Administration, 31(4), 517.

Guile, Leux, Paille, Lombrail, and Moret. (2009). Validation of a tool assessing appropriateness of hospital days in rehabilitation centres. International Journal for Quality in Health Care, 21(3), 198.

Haraden, C., and Resar, R. (2004). Patient Flow in Hospitals: Understanding and Controlling It Better. Frontiers of Health Services Management, 20(4), 3.

Harding, L. M. R., and Petrick, T. M. R. (2008). Nursing Student Medication Errors: A Retrospective Review. Journal of Nursing Education, 47(1), 43.

Harris, R., Ashton, R., Broad, J., Connolly, G., and Richmond, D. (2005). The effectiveness, acceptability and costs of a hospital-at-home service compared with acute hospital care: a randoomized controlled trial. Journal of Health Services Research and Policy, 10(3), 158-166.

Hasan, M. (2001). Readmission of patients to hospital: still ill defined and poorly understood. International Journal for Quality in Health Care, 13(3), 177-179.

Hatam, N. P., Askarian, M. M. M., Sarikhani, Y. M., and Ghaem, H. M. (2010). Necessity of Admissions in Selected Teaching University Affiliated and Private Hospitals during 2007 in Shiraz, Iran. Archives of Iranian Medicine, 13(3), 230.

Helm, J., AhmadBeygi, S., and Van Oyen, M. (2009). The Flexible Patient Flow Simulation Framework. IIE Annual Conference. Proceedings, 803.

Henderson, A., Caplan, G., and Daniel, A. (2004). Patient satisfaction: the Australian patient perspective. Australian Health Review, 27(1), 73.

Higgins, J. P., Thompson, S. G., Deeks, J. J., and Altman, D. G. (2003). Measuring inconsistency in meta-analyses. BMJ, 327(7414), 557-560.

Himmel, W., Tabache, M., and Kochen, M. M. (1996). What happens to long-term medication when general patients are referred to hospital? Eur J Clin Pharmocol, 50.

Hlipala, S. L., Meyer, K. A., Wallace, T. O., and Zaremba, J. A. (2005). Profile of an admission nurse. Nursing Management, 36(6), 44.

Holland, R., Desborough, J., Goodyer, L., Hall, S., Wright, D. and Loke, Y. (2007). Does pharmacist-led medication review help to reduce hospital admissions and deaths in older people? A systematic review and meta-analysis. Br J Clin Pharmacol, 65(3), 303-316.

Horwitz, L. I., Meredith, T., Schuur, J. D., Shah, N. R., Kulkarni, R. G., & Jenq, G. Y. (2006). Dropping the Baton: A Qualitative Analysis of Failures during the Transition from Emergency Department to Inpatient Care. Annals of Emergency Medicine, 53(6), 701.

Houchens, R., Elixhauser, A., and Romano, P. (2008). How Often are Potential Patient Safety Events Present on Admission? The Joint Commission Journal on Quality and Patient Safety, 34(3).

Howard, R. (2008). A Qualitative Exploration of the Underlying Causes of Preventable Drug-Related Morbidity in Primary Care, Resulting in Hospitalisation, 17, 109-116.

Howard, R. L., Avery, A. J., Howard, P. D., and Partridge, M. (2003). Investigation into the reasons for preventable drug related admissions to a medical admissions unit: observational study. Quality and Safety in Health Care, 12(4), 280-285.

Hsu, A. M., Kao, H. M., Genao, L. M., White, H. M., Twersky, J. M., Luo, P. M., et al. (2010). The Clinical Course of Advanced Dementia. *The New England Journal of Medicine, 362*(4), 363.

Huber-Wagner, S., Lefering, R., Qvick, L., Kˆrner, M., Kay, M., Pfeifer, K., et al. (2009). Effect of whole-body CT during trauma resuscitation on survival: a retrospective, multicentre study. The Lancet, 373(9673), 1455.

Hughes, J., Averill, R., Goldfield, N., Gay, J., Muldoon, J., McCullough, E., et al. (2006). Identifying Potentially Preventable Complications Using a Present on Admission Indicator. Health Care Financing Review, 27(3).

Hunter, D., and Bains, N. (1999). Rates of adverse events among hospital admissions and day surgeries in Ontario from 1992 to 1997. Canadian Medical Association. Journal, 160(11), 1585.

Hwang, J. I., and Chang, H. (2010). Understanding non-emergency patients admitted to hospitals through the emergency department for efficient ED functions. Journal of Emergency Nursing, 36(3), 196-202.

Jaimovich, D. G., Hauser, G. G. J., Witte, M. K., Wong, J., Rice, T. B., Kronick, J., et al. (1999). Guidelines for developing admission and discharge policies for the pediatric intensive care unit. Critical Care Medicine, 27(4), 843-845.

Jane, C. (2006). Involving and communicating with patients and the public. *Nursing Standard, 20*(17), 50.

Jha, A. M. M., Orav, E. P., and Epstein, A. M. (2009). Public Reporting of Discharge Planning and Rates of Readmissions. *The New England Journal of Medicine, 361*(27), 2637.

John, D. B., Andrea, E. S., Emily, V. A. F., Therese, A. S., and et al. (2002). Hospital volume and surgical mortality in the United States. *The New England Journal of Medicine, 346*(15), 1128.

John, M. (2004). Patient safety proves elusive. *Modern Healthcare, 34*(44), 6.

Jones, A. (2007). Admitting hospital patients: a qualitative study of an everyday nursing task. Nursing Inquiry, 14(3), 212-223.

Jorg, F., Boeije, H. R., Huijsman, R., de Weert, G. H., and Schrijvers, A. J. (2002). Objectivity in needs assessment practice: admission to a residential home. Health Soc Care Community, 10(6), 445-456.

June, R. L., Joanne, L., Daniel, J. F., Steven, L., and Jack, M. G. (2003). Patterns of functional decline at the end of life. *JAMA, 289*(18), 2387.

Kable, Gibberd, and Spigelman. (2008). Predictors of adverse events in surgical admissions in Australia. International Journal for Quality in Health Care, 20(6), 406.

Kahl, J., Reid-Searl, K., Dwyer, T., Happell, B., Moxham, L., and Morris, J. (2009). Action in paediatric mental health. Australian Nursing Journal, 17(3), 43.

Karmel, R., Gibson, D., Lloyd, J., and Anderson, P. (2009). Transitions from hospital to residential aged care in Australia. Australas J Ageing, 28(4), 198-205.

Kazley, A. P., Hillman, D. D., Johnston, K. M. D. M., and Simpson, K. D. (2010). Hospital Care for Patients Experiencing Weekend vs Weekday Stroke: A Comparison of Quality and Aggressiveness of Care. Archives of Neurology, 67(1), 39.

Keenan, S., Doig, G., Martin, C., Inman, K., and Sibbald, W. (1997). Accessing the efficiency of the admission process to a critical care unit: does the literature allow the use of benchmarking? Intensive Care Medicine, 23, 574-580.

Kelen, G. D., Scheulen, J. J., and Hill, P. (2001). Effect of an Emergency Department (ED) Managed Acute Care Unit of ED Overcrowding and Emergency Medical Services Diverson. Academic Emergency Medicine, 8(11).

Kessels-Habraken, M., Van der Schaaf, T., De Jonge, J., and Rutte, C. (2010). Defining near misses: Towards a sharpened definition based on empirical data about error handling processes. *Social Science and Medicine, 70*(9), 1301.

Kevin, G. M. V., and David, G. (2003). Residents' suggestions for reducing errors in teaching hospitals. *The New England Journal of Medicine, 348*(9), 851.

Kissam, S., Gifford, D. R., Mor, V., and Patry, G. (2003). Admission and continued-stay criteria for assisted living facilities. Journal of the American Geriatrics Society, 51(11), 1651.

Klop, R., van Wijmen, F., and Philipsen, H. (1991). Patients' rights and the admission and discharge process. Journal of Advanced Nursing, 16, 408-412.

Kolker, A. (2008). Process Modeling of Emergency Department Patient Flow: Effect of Patient Length of Stay on ED Diversion. Journal of Medical Systems, 32(5), 389.

Kroemer, D., Bloor, G., and Fiebig, J. (2004). Acute Transition Allliance: rehabilitation at the acute/aged care interface. Australian Health Review, 28(3), 266.

Krska, J., Hansford, D., Seymour, D. G., and Farquharson, J. (2007). Is hospital admission a sufficiently sensitive outcome measure for evaluating medication review services? A descriptive analysis of admissions within a randomised controlled trial. International Journal of Pharmacy Practice, 15(2), 85-91.

LaDuke, S. R. B. (2009). Playing it safe with bar code medication administration. *Nursing, 39*(5), 32.

Lagoe, R. J., Noetscher, C. M., and Murphy, M. P. (2001). Hospital readmission: predicting the risk. Journal of Nursing Care Quality, 15(4), 69-83.

Lambert, M., III. (2004). Improvement and Innovation in Hospital Operations: A Key to Organizational Health. Frontiers of Health Services Management, 20(4), 39.

Lattimer, V., Brailsford, S., Turnbull, J., Tarnaras, P., Smith, H., George, S., et al. (2004). Reviewing emergency care systems I: insights from system dynamics modelling. Emerg Med J, 21(6), 685-691.

Ledoux, D., Canivet, J., Preiser, J., Lefrancq, J., and Damas, P. (2008). SAPS 3 admission score: an external validation in a general intensive care population. Intensive Care Medicine, 34(10), 1873.

Leff, B., Burton, L., Mader, S. L., Naughton, B., Burl, J., Inouye, S. K., et al. (2005). Hospital at Home: Feasibility and Outcomes of a Program To Provide Hospital-Level Care at Home for Acutely Ill Older Patients. Annals of Internal Medicine, 143(11), 798-808.

Lepaux, D.-J. (2001). Improving the quality of the admission process in a French psychiatric hospital: impact on the expertise of the professional team. International Journal for Quality in Health Care, 13(4), 333.

Lewis, P., Dornan, T., Taylor, D., Tully, M., Wass, V., and Ashcroft, D. (2009). Prevalence, Incidence and Nature of Prescribing Errors in Hospital Inpatients: A Systematic Review. Drug Safety, 32(5), 379.

Lexchin, J. (2009). More than the Diagnosis. In C. F. P. V. July (Ed.) (pp. 689).

Lezzoni. (2007). Finally present on admission but needs attention. Med Care, 45(4), 280-282.

Lorch, S., Baiocchi, M., Silber, J., Even-Shoshan, O., Escobar, G., and Small, D. (2010). The Role of Outpatient Facilities in Explaining Variations in Risk-Adjusted Readmission Rates between Hospitals. Health Services Research, 45(1), 24.

MacLellan, D., Cregan, P., McCaughan, B., O'Connell, T., and McGrath, K. (2008). Applying clinical process redesign methods to planned arrivals in New South Wales hospitals. Medical Journal of Australia, 188(6), S23.

Madlom, M. M., Singh, R., and Rigby, A. S. (2002). Assessment of acute admissions by middle grade trainees and consultants will reduce the need for overnight hospital admissions. Archives of Disease in Childhood, 87(4), 357.

Marshall, A., Vasilakis, C., and El-Darzi, E. (2005). Length of Stay-Based Patient Flow Models: Recent Developments and Future Directions. Health Care Management Science, 8(3), 213.

Mathews, J. J. (1983). The communication process in clinical settings. Social Science and Medicine, 17(18), 1371-1378.

McLean, R., Mendis, K., and Canalese, J. (2008). A ten-year retrospective study of unplanned hospital readmissions to a regional Australian hospital. Australian Health Review, 32(3), 537.

McMahon, L. M. M. (2007). The Hospitalist Movement -- Time to Move On. *The New England Journal of Medicine, 357*(25), 2627.

McNutt, R. M. F., Johnson, T. P., Odwazny, R. M. F., Remmich, Z. M., Skarupski, K. P. M. P. Meurer, S. (2010). Change in MS-DRG Assignment and Hospital Reimbursement as a Result of Centers for Medicare and Medicaid Changes in Payment for Hospital-Acquired Conditions: Is It Coding or Quality? *Quality Management in Health Care, 19*(1), 17.

Meyer, M. N. (2002). Avoid PCU bottlenecks with proper admission and discharge criteria. Nursing Management, 33(6), 31.

Michelson, K. (2010). Trust: can it exist in today's healthcare system? Pediatr Crit Care Med, 11(3), 432-433.

Millar, J., Silla, R., Lee, G., and Berwick, A. (2008). The national inpatient medication chart: critical audit of design and performance at a tertiary hospital. Medical Journal of Australia, 188(2), 95.

Monik, L. A. (2007). Repatriation of patients--a process to ensure a safe patient transfer. Healthcare Quarterly, 10(4), 80-83.

Moore, S. (2003). Capacity planning - modelling unplanned admissions in the UK NHS. international Journal of Health Care Quality Assurance, 16(4/5).

Nasir, K., Lin, Z., Bueno, H., Normand, S.-L. T., Drye, E., Keenan, P. S., et al. (2010). Is Same-Hospital Readmission Rate a Good Surrogate for All-Hopsital Readmission Rate? Medical Care, 48(5).

Navarro, A. E., Wilber, K., & Silverstein, M. (2008). Improving Health Care Transitions: Targeting Resources to Vulnerable Elders. The Gerontologist, 48(Health Module).

New Zealand, H. T. A. (1998). Acute medical admissions: a critical appraisal of the literature. Retrieved. from http://www.mrw.interscience.wiley.com/cochrane/cldare/articles/DARE-11998009108/frame.html.

Noralou, P. R. (2000). The disconnect between the data and the headlines. *Canadian Medical Association. Journal, 163*(4), 411.

NSW Health. (2002). *Safety Advocate, Medication Safety.* North Sydney: NSW Department of Health, August(2).

O'Brien, D., Williams, A., Blondell, K., and Jelinek, G. A. (2006). Impact of streaming "fast track" emergency department patients. Australian Health Review, 30(4), 525.

O'Connell, T., Bassham, J., Bishop, R., Clarke, C., Hullick, C., King, D., et al. (2008). Clinical process redesign for unplanned arrivals in hospitals. Medical Journal of Australia, 188(6), S18.

Ong, S. W., Fernandes, O. A., Cesta, A., and Bajcar, J. M. (2006). Drug-Related Problems on Hospital Admission: Relationship to Medication Information Transfer. The Annals of Pharmacotherapy, 40, 408-413.

Overhage, J. M., Dexter, P. R., Perkins, S. M., Cordell, W. H., McGoff, J., McGrath, R., et al. (2002). A Randomized, Controlled Trial of Clinical Information Shared From Another Institution. Annals of Emergency Medicine, 39(1), 14-23.

Pantilat, S. Z., Lindenauer, P. K., Katz, P. P., and Wachter, R. M. (2002). Primary care physician attitudes regarding communication with hospitalists. Dis Mon, 48(4), 218-229.

Passov, V. M., and Rundell, J. M. (2008). Analysis of Transfers From a Medical-Psychiatry Inpatient Unit to a Medical-Surgical Unit Within 48 Hours of Admission. Psychosomatics, 49(6), 535.

Pate, D. C., and Puffe, M. (2007). Improving Patient Flow. Physician Executive, 33(3), 32.

Pearson, B., Skelly, R., Wileman, D., and Masud, T. (2002). Unplanned readmission to hospital: a comparison of the views of general practitioners and hospital staff. Age Ageing, 31, 141-143.

Pierce, D., and Fraser, G. (2009). Information transfer and application in aged care facilities in an Australian rural setting. Rural and remote health, 9(3).

Pietz, K., Byrne, M., Daw, C., and Petersen, L. (2007). The Effect of Referral and Transfer Patients on Hospital Funding in a Capitated Health Care Delivery System. Med Care, 45, 951-958.

Plunkett, W. (2009). We've a long way to go. Australian Journal of Pharmacy, 90(1070), 20.

Pomerance, D. (2009). Access to Healthcare: The Right of the People. *Health Management Technology, 30*(11), 12.

Poon, E. M. M., Keohane, C. B. R., Yoon, C. M., Ditmore, M. B., Bane, A. R. M., Levtzion-korach, O. M. M., et al. (2010). Effect of Bar-Code Technology on the Safety of Medication Administration. *The New England Journal of Medicine, 362*(18), 1698.

Potter, M. A., and Luxton, G. (1999). Prealbumin measurement as a screening tool for protein calorie malnutrition in emergency hospital admissions: A pilot study. Clinical and Investigative Medicine, 22(2), 44.

Quirk, A., Lelliott, P., Audini, B., and Buston, K. (2003). Non-clinical and extra-legal influences on decisions about compulsory admission to psychiatric hospital. Journal of Mental Health, 12(2), 119.

Read, S. (1999). Inappropiate admissions to hospital: The views of nursing and residential homes. Nursing Standard, 13(33), 32.

Reid, F. D. A., Cook, D. G., and Majeed, A. (1999). Explaining variation in hospital admission rates between general practices: Cross sectional study. British Medical Journal, 319(7202), 98.

Restrepo, M. I., Anzueto, A., Mortensen, E. M., Pugh, J. A., and et al. (2005). Evaluation of Icu Admission Criteria for Patients with Community-Acquired Pneumonia: Current Practice Survey. Chest, 128(4), 149S.

Ricauda, A., Tibaldi, V., Leff, B., Scarafiotti, C., Marinello, R., Zanocchi, M., et al. (2008). Substitutive "Hospital at Home" Versus Inpatient Care for Elderly Patients with Exacerbations of Chronic Obstructive Pulmonary Disease: A Prospective Randomized, Controlled Trial. J Am Geriatr Soc, 56, 493-500.

Richards, S. H., Coast, J., Gunnell, D. J., Peters, T. J., Pounsford, J., and Darlow, M. A. (1998). Randomised controlled trial comparing effectiveness and acceptability of an early discharge, hospital at home scheme with acute hospital care. BMJ, 316(7147), 1796-1801.

Rittenhouse, D. M. M., Shortell, S. P. M. M., and Fisher, E. M. M. (2009). Primary Care and Accountable Care -- Two Essential Elements of Delivery-System Reform. *The New England Journal of Medicine, 361*(24), 2301.

Rodham, C., and Barack, O. (2006). Making Patient Safety the Centerpiece of Medical Liability Reform. *The New England Journal of Medicine, 354*(21), 2205.

Rogers, S., Wilson, D., Wan, S., Griffin, M., Rai, G., and Farrell, J. (2009). Medication-related admissions in older people: a cross-sectional, observational study. Drugs Aging, 26(11), 951-961.

Roland, M., Dusheiko, M., Gravelle, H., and Parker, S. (2005). Follow up of people aged 65 and over with a history of emergency admissions: analysis of routine admission data. BMJ, 330(7486), 289-292.

Rosewarne, R. C. (2001). Australian approaches to resident classification and quality assurance in residential care. J Aging Soc Policy, 13(2-3), 117-135.

Rosmulder, R., Krabbendam, K., and Luitse, J. (2006). Planning emergency patients: An attempt to change the nature of the emergency department. Eur J Emerg Med, 13(6), 377-379.

Rothbard, A. S., Blank, M. P., Staab, J. M. M., TenHave, T. P. M. P. H., Young, D. M. D. P., Berry, S. A., and Eachus, S. (2009). Previously Undetected Metabolic Syndromes and Infectious Diseases Among Psychiatric Inpatients. Psychiatric Services, 60(4), 534.

Roy, C. L., Kachalia, A., Woolf, S., Burdick, E., Karson, A., and Gandhi, T. K. (2009). Hospital readmissions: physician awareness and communication practices. J Gen Intern Med, 24(3), 374-380.

Royal, S., Smeaton, L., Avery, A., Hurwitz, B., and Sheikh, A. (2006). Interventions in primary care to reduce medication related adverse events and hospital admissions: systematic review and meta-analysis. Quality and Safety in Health Care, 15, 23-31.

Sadler, C. (2008). Virtual reality. Nursing Standard, 22(19), 18.

Safeek, Y. M. M. C., and May, P. J. (2010). Protocols, Prompters, Bundles, Checklists, and Triggers: Synopsis of a Preventable Mortality Reduction Strategy. Physician Executive, 36(2), 22.

Schers, H., van de Ven, C., van den Hoogen, H., Grol, R., and van den Bosch, W. (2004). Patients' Needs for Contact With Their GP at the Time of Hospital Admission and Other Life Events: A Quantitative and Qualitative Exploration. Ann Fam Med, 2(5), 462-468.

Schilling, P. M. D. M., Campbell, D. J. M. D. F., Englesbe, M. M., and Davis, M. M. M. (2010). A Comparison of In-hospital Mortality Risk Conferred by High Hospital Occupancy, Differences in Nurse Staffing Levels, Weekend Admission, and Seasonal Influenza. Medical Care, 48(3), 224.

Schulmeister, L., (2008). Patient Misidentification in Oncology Care. Clinical Journal of Oncology Nursing, 12(3), 495.

Scott, C. W., Stephen, P. S., David, J. M., Richard, G. K., and Jerod, M. L. (2005). Quality of Care in U.S. Hospitals as Reflected by Standardized Measures, 2002-2004. *The New England Journal of Medicine, 353*(3), 255.

Senate, T. (2007). Highway to health: better access for rural, regional and remote patients.

Setrakian, J. C., Flegel, K. M., Hutchinson, T. A., Charest, S., Cote, L., Edwards, M., et al. (1999). A physician-centered intervention to shorten hospital stay: a pilot study. Canadian Medical Association. Journal, 160(12).

Shalchi, Z., Saso, S., Li, H., Rowlandson, E., and Tennant, R. (2009). Factors influencing hospital readmission rates after acute medical treatment. Clinical Medicine, 9(5), 426.

Shepperd, S., Doll, H., Angus, R., Clarke, M., Iliffe, S., Kalra, L., et al. (2008). Admission avoidance hospital at home. Cochrane Database of Systematic Reviews, 4.

Shepperd, S., and Iliffe, S. (2005). Hospital at home versus in-patient hospital care. Cochrane Database of Systematic Reviews, 20(3).

Shepperd, S. M. D., Doll, H. M. D., Angus, R. M., Clarke, M. M. A. D., Iliffe, S. B. M., Kalra, L. M. D. P., et al. (2009). Avoiding hospital admission through provision of hospital care at home: a systematic review and meta-analysis of individual patient data. Canadian Medical Association. Journal, 180(2), 175.

Shmueli, A., and Sprung, C. (2005). Assessing the in-hospital survival benefits of intensive care. International Journal of Technology Assessment in Health Care, 21(1), 66.

Shmueli, A., Sprung, C. L., and Kaplan, E. H. (2003). Optimizing Admissions to an Intensive Care Unit. Health Care Management Science, 6(3), 131.

Simpson, L., and Brown, J. (1993). Patient protocols. *international Journal of Health Care Quality Assurance, 6*(6), 10.

Sinclair, J., Gray, A., and Hawton, K. (2006). Systematic review of resource utilization in the hospital management of deliberate self-harm. Psychological Medicine, 36(12), 1681.

Singh, S., Nosyk, B., Sun, H., Christenson, J., Innes, G., and Anis, A. (2008). Value of Information of a clinical prediction rule: Informing the efficient use of healthcare and health research resources. International Journal of Technology Assessment in Health Care, 24(1), 112.

Smith, A. K., Ries, A. P., Zhang, B., Tulsky, J. A., and et al. (2006). Resident Approaches to Advance Care Planning on the Day Hospital Admission. Archives of Internal Medicine, 166(15), 1597.

Snape, J., and Santharam, M. G. (1997). Inappropriate acute admissions from nursing and residential homes. Age Ageing, 26(4), 320-321.

Steffens, L. B. R. C., Jaeger, S. M. A.-B., Herrmann, S. M. R., Thomas, K. B. R. M. C., Barker, K. M. R. M. C., and Eggleston, A. B. R. (2009). Hospital Readmission: The Move Toward Pay for Performance. Journal of Nursing Administration, 39(11), 462.

Stiell, A., Forster, A. J., Stiell, I. G., and van Walraven, C. (2003). Prevalence of information gaps in the emergency department and the effect on patient outcomes. Canadian Medical Association. Journal, 169(10), 1023-1028.

Stone, B. L., Boehme, S., Mundorff, M. B., Maloney, C. G., and Srivastava, R. (2005). Hospital admission medication reconciliation in medically complex children: An observational study. Archives of Disease in Childhood, 95(4), 250-255.

Sundaramoorthi, D., Chen, V., Rosenberger, J., Bum Kim, S., and Buckley-Behan, D. (2010). A data-integrated simulation-based optimization for assigning nurses to patient admissions. Health Care Management Science, 13(3), 210-221.

Tam, V., Knowles, S. R., Cornish, P. L., and Fine, N. (2005). Frequency, type and clinical importance of medication history errors at admission to hospital: a systematic review. Canadian Medical Association. Journal, 173(5), 510.

Taylor, J., Edwards, J., Kelly, F., & Fielke, K. (2009). Improving transfer of mental health care for rural and remote consumers in South Australia. Health and Social Care in the Community, 17(2), 216-224.

Tieder, J. S., Cowan, C. A., Garrison, M. M., and Christakis, D. A. (2008). Variation in Inpatient Resource Utilization and Management of Apparent Life-Threatening Events. The Journal of Pediatrics, 152(5), 629.

Tjia, J., Bonner, A., Briesacher, B., McGee, S., Terrill, E., and Miller, K. (2009). Medication Discrepancies upon Hospital to Skilled Nursing Facility Transitions. Journal of General Internal Medicine, 24(5), 630-635.

Tulloch, A., How, C., Brent, M., Chapman, R., and et al. (2007). Admission and discharge practices: High Dependency Unit audit outcome. Contemporary Nurse : a Journal for the Australian Nursing Profession, 24(1), 15.

Vahabi, M. (2007). The impact of health communication on health-related decision making. Health Education, 107(1), 27.

van Craen, K., Braes, T., Wellens, N., Denhaerynck, K., Flamaing, J., Moons, P., et al. (2010). The Effectiveness of Inpatient Geriatric Evaluation and Management Units: A Systematic Review and Meta-Analysis. Journal of the American Geriatrics Society, 58(1), 83-92.

van der Kam, W. J., Meyboom de Johg, B., Tromp, T., Moorman, P. W., and van der Lei, J. (2001). Effects of electronic communication between the GP and the pharmacist. The quality of medication data on admission and after discharge. Fam Pract, 18(6).

van Walraven, C., Dhalla, I., Bell, C., Etchells, E. E., Stiell, I. G., Zarnke, K., Austin, P. and Forster, A. (2010). Derivation and validation of an index to predict early dealth or unplanned readmission after discharge from hospital to the community. Canadian Medical Association. Journal, 182(6).

Vasileff, H., Whitten, L., Pink, J., Goldsworthy, S., and Angley, M. (2009). The effect on medication errors of pharmacists charting medication in an emergency department. Pharmacy World and Science, 31(3), 373.

Vedsted,P. (2001). The effect of an out-of-hours reform on attendance at casualty wards. The Danish example. Scandinavian Journal of Primary Health Care, 19(2), 95-98.

Vest, J. (2009). Health Information Exchange and Healthcare Utilization. Journal of Medical Systems, 33(3), 223.

Vijay, V., Kazzaz, S., and Refson, J. (2008). The same day admissions unit for elective surgery: a case study. international Journal of Health Care Quality Assurance, 21(4), 374-379.

Vitali, S., Jonathan, R. I., Gwendolyn, L. G., and Enrico, C. (2005). Handheld Computer-based Decision Support Reduces Patient Length of Stay and Antibiotic Prescribing in Critical Care. *Journal of the American Medical Informatics Association, 12*(4), 398.

Walk, S., Bertsche, T., Kaltschmidt, J., Pruszydlo, M., Hoppe-Tichy, T., Walter-Sack I, I., et al. (2008). Rule-based standardised switching of drugs at the interface between primary and tertiary care. European Journal of Clinical Pharmacology, 64(3), 319.

Walker, B., and Haslett, T. (2003). The dynamics of local rules in hospital admission processes. Australian Health Review, 26(3), 98-106.

Walker, J., Teare, G., Hogan, D., Lewis, S., and Maxwell, C. (2009). Identifying Potentially Avoidable Hospital Admissions From Canadian Long-Term Care Facilities. Med Care, 47, 250-254.

Weinberger, M., Oddone, E. Z., and Henderson, W. G. (1996). Does Increased Access to Primary Care Reduce Hospital Readmissions? New England Journal of Medicine, 334(22), 1441-1447.

Wendy, L., and Thomas, H. G. (2007). Disclosing medical errors to patients: a status report in 2007. *Canadian Medical Association. Journal, 177*(3), 265.

Whynes, D. K., Falk-Whynes, J., and Pringle, M. (1999). Trends in acute admissions: a study of one English district general hospital. Journal of Public Health Medicine, 21(4), 459.

William, J. K., Kitaw, D., Stephen, W. M., Yu-Hsuan, S., Alan, C. W., and Abel, E. M. (2007). Weekend versus Weekday Admission and Mortality from Myocardial Infarction. *The New England Journal of Medicine, 356*(11), 1099.

Windmeijer, F., Gravelle, H., and Hoonhout, P. (2005). Waiting lists, waiting times and admissions: an empirical analysis at hospital and general practice level. Health Economics, 14(9), 971.

Wiprud, R. M. (2006). Providing Consistent Care With Standardized Admission Orders. Family Practice Management, 13(8), 49.

Wolff, A., Taylor, S., and McCabe, J. (2004). Using checklists and reminders in clinical pathways to improve hospital inpatient care. Medical Journal of Australia, 181(8), 428.

Xie, H., Chaussalet, T. J., Thompson, W. A., and Millard, P. (2007). A simple graphical decision aid for the placement of elderly people in long-term care. Journal of the Operational Research Society, 58, 446-453.

Young, J., and Sharan, U. (2003). Medical assessment and direct admissions to a community hopsital. Clinical Governance, 8(3).

Zanaboni, P., Scalvini, S., Bernocchi, P., Borghi, G., Tridico, C., and Masella, C. (2009). Teleconsultation service to improve healthcare in rural areas: acceptance, organizational impact and appropriateness. BMC Health Services Research, 9(238).

Zimmermann, P. G. (2001). Cutting edge discussions of management, policy, and program issues in emergency care. Journal of emergency nursing: JEN: official publication of the Emergency Department Nurses Association, 27(2), 179-189.

Zun, L. (2009). Analysis of the literature on emergency department throughput. West J Emerg Med, 10(2), 104-109.

Zwaan, L., de Bruijne, M., Wagner, C., Thijs, A., Smits, M., van der Wal, G. Timmermans D., (2010). Patient Record Review of the Incidence, Consequences, and Causes of Diagnostic Adverse Events. *Archives of Internal Medicine, 170*(12), 1015.

7.4. Additional References

AIHW (2010) METeOR. http://meteor.aihw.gov.au/content/index.phtml/itemId/181162 (Updated January 2010) (Accessed 6 May 2010)

Harrison MI, Koppel R., and Bar-Lev S., (2007) Unintended Consequences of Information Technologies in Health Care - An Interactive Sociotechnical Analysis,‖ Journal of the American Medical Informatics Association : JAMIA, vol. 14, pp. 542-549.

Lynn J, Adamson DM. Living well at the end of life. Adapting health care to serious chronic illness in old age. Washington: Rand Health, 2003.

NLM (2010) MESH (Medical Subject Headings). http://www.nlm.nih.gov/mesh (Updated 29 May 2010) (Accessed 6 May 2010)

NSW Department of Health (2009) Caring Together: The Health Action Plan for NSW, NSW Government, North Sydney NSW 2060

Ramanujam R, Keyser D.J., and Sirio C.A., (2005) Making a Case for Organizational Change in Patient Safety Initiatives,‖ Advances in Patient Safety, vol. 2, pp. 455-465.