Windows into
Safety and Quality
in Health Care 2010

AUSTRALIANCOMMISSIONON
SAFETYANDQUALITYINHEALTHCARE

Contents

Foreword

Over the last three years, the Australian Commission on Safety and Quality in Health Care has reported on aspects of the state of healthcare safety and quality in Australia. In 2008 and 2009, the Commission published *Windows into Safety and Quality in Health Care* which offers a broad review of safety and quality issues in a number of areas.

This year's report, *Windows into Safety and Quality in Health Care 2010*, builds upon these previous reports and offers insight into a range of healthcare safety and quality matters in a number of settings and from various perspectives. For the first time, we are including a perspective on services for Aboriginal and Torres Strait Islander peoples. This year's Windows report also anticipates some of the emerging issues and challenges that the Commission may address.

The Commission is approaching the end of its initial five year term, so it is an appropriate time to consider our past and future journey. This report showcases some of our activities to better understand and improve the safety and quality of health care in Australia. It is also appropriate to foreshadow future issues and programs.

The *Windows into Safety and Quality in Health Care 2010* report also highlights learning from the experiences of patients, recognising and responding to clinical deterioration, National Safety and Quality Health Service Standards and their future role, and examines improved reporting for safety. Initiatives in these areas are key future activities for the Commission.

I warmly acknowledge the enthusiasm and dedication of our staff. I commend *Windows into Safety and Quality in Health Care 2010* to you.

Bill Beerworth Chairman
Australian Commission on Safety and Quality in Health Care

Introduction

The Australian Commission on Safety and Quality in Health Care (the Commission) was established in 2006 by the Australian, State and Territory Governments to lead and coordinate national improvements in safety and quality. Its establishment followed the 2005 review into national arrangements for safety and quality of health care in Australia.[1]

The focus of the Commission's work over the last few years has been on priorities for the health system where current, complex problems and community concerns could benefit from national consideration and action. The Commission's initial priority areas included healthcare rights, patient identification, medication safety, clinical handover, healthcare associated infection, open disclosure, accreditation and information strategies. The Commission's work has expanded to include work on falls prevention, credentialling, clinical quality registries, recognition of and response to deteriorating patients, antimicrobial stewardship and a number of other areas.

From the outset, the remit the Commission was given ran across the healthcare system in Australia, including the public and private sectors. This breadth of scope has been reflected not only in the selection of work programs to specific activities but also in the application of much the Commission's work. Work in areas such as the Australian Charter of Healthcare Rights, clinical handover, medication safety, patient identification, open disclosure, falls prevention and hand hygiene has application not only in acute hospital settings but also in many other health settings. These include primary care, mental health, paediatrics, maternity care, allied health and diagnostics.

In recent years the Commission, in consultation with a broad array of organisations and individuals, has developed the Australian Safety and Quality Framework for Health Care. The Framework describes a vision for safe and high quality care for all Australians, and sets out the actions needed to achieve this vision. The Framework specifies three core principles for safe and high quality care. These are that care is consumer centred, driven by information, and organised for safety.

The Framework provides 21 areas for action that everyone in the health system can take to improve the safety and quality of care provided in all healthcare settings over the next decade. The Framework should:

- be used as the basis of strategic and operational safety and quality plans
- provide a mechanism for refocusing current safety and quality improvement activities and designing goals for health service improvement
- be used as a guide for reviewing investments and research in safety and quality
- promote discussion with consumers, clinicians, managers, researchers and policy makers about how they might best form partnerships to improve safety and quality.

The Commission develops evidence through commissioning research, evaluating projects and analysing information in the public domain. With this evidence base, the Commission supports the implementation of sustainable change that is efficient and effective.

In its role as primarily a coordination and facilitation body, the Commission utilises evidence and data and the experience, enthusiasm and commitment of consumers, clinicians, managers and other stakeholders to influence the system to make changes for the safety and quality of health care in Australia.

The Commission works with the Inter Jurisdictional Committee, made up of members from each State and Territory Department of Health and the Commonwealth Department of Health and Ageing.

There are a number of key committees that aid the Commission:

- the Private Hospital Sector Committee, with nominees from key private healthcare bodies in Australia
- the Information Strategy Committee which provides input and advice relating to the information strategy
- the Primary Care Committee which provides advice on primary care issues and liaison with the primary care sector.

These committees, which are supplemented by specific technical advisory and reference groups, give the Commission's work breadth, depth and expertise. They also enable insight and influence across the whole health system. The span of interests of safety and

quality stakeholders is broad and this group includes consumers, private and public hospital sectors, primary care, accreditation organisations, academics, industry, health insurers, information technology providers, clinical practitioners, professional organisations and education bodies, governments and policy makers. The Commission is constantly engaging with the broad array of stakeholders to identify and address issues of safety and quality in Australian health care.

The Commission was originally established for five years, commencing on 1 January 2006. In light of the work of the Commission and broad recognition of the importance of questions of safety and quality in health care there have been calls for establishment of a permanent national safety and quality body.

In April 2010, the Council of Australian Governments announced the National Health and Hospitals Network Agreement between the Australian Government and State and Territory governments (excluding Western Australia).[2] The objective of this Agreement is to improve health outcomes for all Australians and the sustainability of the Australian health system. The Agreement sets out the architecture and foundations of the National Health and Hospitals Network. One aspect of this is that the role of the Commission will expand, particularly in order to develop national clinical safety and quality standards.

The Australian Government has released further information on the Commission's role in the National Health and Hospitals Network. This includes the Commission as a permanent, independent body 'with an expanded remit to drive a quality and outcomes focus in all health settings, including primary health care' and that the 'permanent Commission will work with clinicians to identify best practice clinical care, set national quality and safety standards, and take on a broader role in developing new clinical safety and quality standards across the health system'.[3]

The Commission welcomes the challenge of the proposed expanded role. It will continue to develop and enhance its engagement and relationships with the many individuals and organisations whose knowledge and expertise make them vital partners in collectively seeking improve the health care that Australians receive.

The *Windows into Safety and Quality in Health Care* series is intended to provide a focus for discussion and a flavour of the activity being undertaken by the Commission. Each edition does not attempt to cover

every aspect of Commission activity. Future reports will address major evolving work such as open disclosure, clinical communications, and other areas of activity whose purpose is improving the safety and quality of health care.

The chapters in this report describe some of the areas in which the Commission is active and anticipates developments in areas of emerging interest for the Commission. The sections below describe each chapter of the report.

2. Improving safety and quality by learning from the experience of patients

As the patient safety field has developed over the last 20 years, the focus on the measurement of patient safety efforts has increased. Patient safety measurement is difficult, with complexities including varying definitions of key concepts, lack of agreement about measurement processes and uncertainties about how this information should be used. Notwithstanding this, there is an increasing realisation that an important aspect of a balanced approach to patient safety and quality measurement is to include the experience of patients.

An understanding of the actual experiences of patients is essential for an accurate appreciation of the overall safety and quality of care. Patients have a unique perspective regarding the health care that they receive, and can provide information and insights that healthcare workers might not otherwise have known.

This chapter provides an overview of the issues associated with the measurement of patient experience, and presents some new data from an international survey of patient experience, comparing Australia with other countries on key dimensions of patient experience. Improvements were reported in the areas of access to after hours care and provision of written information after discharge.

Some respondents indicated that they had experienced harm, harmful side effects or potential harm from the health care they received. This demonstrates that adverse events in health care continue to be a problem and the current focus on improving safety in healthcare provision will need to continue.

3. Addressing antibiotic resistance

Seventy years ago, with the discovery of penicillin, it was thought that illnesses such as meningitis, pneumonia and other infectious diseases might become diseases of the past. However, at a time when more patients are undergoing organ transplantation, chemotherapy for cancer, and depending on antibiotics for their survival, bacterial resistance to currently available antibiotics is now becoming increasingly frequent in both hospital and community settings. Resistance to antibiotics presents a major challenge to health care as resistant bacteria dramatically decrease the chance of effectively treating infections and increase the risk of complications and death. It is estimated that 2 million patients develop healthcare-associated infections (HAI) each year in Europe, of which over half are drug resistant. Patients are twice as likely to die of their infections if resistant.

Two major initiatives to address some of these issues have been the collection and monitoring of resistance data to inform stakeholders and change practice, and antimicrobial stewardship (AMS). The benefits of AMS were reported in the Commission's *Windows into Safety and Quality in Health Care 2009*. This chapter focuses on the measurement of resistance and antibiotic usage.

Comparison of national usage data with international data indicates that Australian hospitals are relatively high users of antibiotics when compared with their Northern European counterparts. The national focus on implementing AMS programs in hospitals currently being led by the Commission is aimed at improving patient safety by reducing inappropriate antibiotic prescribing and by reducing HAI from resistant organisms. Antibiotic usage data will be useful for monitoring the effect of these programs on influencing antibiotic prescribing at hospital, state and territory, and national levels.

4. Safe and high quality health care for Aboriginal and Torres Strait Islander peoples: A perspective from the Kanyini Vascular Collaboration

This chapter describes some of the initiatives aimed at improving the safety and quality of health care for Aboriginal and Torres Strait Islander peoples.

Ensuring Aboriginal and Torres Strait Islander peoples have equitable access to safe and high quality health care is an ongoing challenge for the Australian healthcare system. This chapter highlights the important contribution of comprehensive primary health care to addressing this challenge by focussing on the work of several Aboriginal Community Controlled Health Services (ACCHSs) and a State government mainstream service.

The chapter examines some of the primary care activities being undertaken by Kanyini Vascular Collaboration and three of its health service partners through the elements of the National Safety and Quality Framework: consumer centred care, that is driven by information and organised for safety. The case studies demonstrate how several health services are successfully addressing barriers to the provision of safe and high quality primary health care for their patients.

The 2008 Council of Australian Governments National Partnership Agreement on 'Closing the Gap' in Indigenous health outcomes provides an unprecedented opportunity to address these systemic inequities. Community-initiated and based research can play an important role in better informing policy on successful strategies to improve healthcare safety and quality.

5. Recognising and responding to clinical deterioration

Ensuring that patients whose condition deteriorates in hospital receive appropriate and timely care is a key safety and quality challenge. To address this challenge at a national level the Commission started a program of work in this area in late 2008. Since then, there has been considerable work done to improve recognition and response systems by the Commission nationally, by the state and territory health departments at a jurisdictional level, and by individual hospitals and clinicians.

This chapter looks at some of the initiatives, and identifies some important emerging issues regarding the recognition of, and response to, patients whose condition is deteriorating. Some of the initiatives and issues discussed are: improving the design and use of observation charts, the implementation of response programs in public and private sector hospitals, the role of clinical judgement and decision-making, end of life care issues, and the sustainability of response systems.

It may be that there will not ever be a single 'best' way of recognising and responding to clinical deterioration; different settings and different types of facilities need to use processes and systems that are appropriate for their

resources and their patient populations. In this context, the Commission developed the *National Consensus Statement: Essential Elements for Recognising and Responding to Clinical Deterioration*. The Consensus Statement describes the elements that are essential for prompt and reliable recognition of, and response to, clinical deterioration.

The Commission will continue to support the effective operation and implementation of the elements in the Consensus Statement, and provide a national focus and leadership for work in Australia in this area. In 2010 the Commission is also undertaking a national survey of the systems that hospitals have in place for recognising and responding to clinical deterioration. The results of this survey will provide information about the current status of these systems, and will help the Commission target its work to address the needs of hospitals in recognising and responding to clinical deterioration.

6. Changing practice through improving clinical handover

In 2007, the Commission established the National Clinical Handover Initiative to develop and trial practical and transferable tools for improving handover communication. The real risks to patient safety that can arise from poor handover, as well as the scarcity of existing evidence, motivated the Commission to work on developing evidence-based tools to address these risks.

Clinical handover is defined as the transfer of professional responsibility and accountability for some or all aspects of care for a patient, or group of patients, to another person or professional group on a temporary or permanent basis. This chapter reports on the development and piloting of various tools to improve clinical handover and reports on 14 projects are included.

The Commission is now building on the foundational handover work. A toolkit is being developed to complement the *OSSIE Guide to Clinical Handover Improvement* and further assist with handover improvement. The Commission is also examining the possibility of developing new guides on handover improvement for transfers of care, including discharge, inter-hospital transfer and facility transfer.

The interest and momentum in handover improvement are growing rapidly throughout the Australian healthcare system: in all jurisdictions, in local health areas, in

educational institutions, and among front-line clinicians as a result of the Commission's work.

7. Accreditation, change and improved quality of patient care

Healthcare in Australia is delivered in a variety of settings including hospitals, office-based practices and community settings. At the request of Health Ministers, the Commission has developed an initial draft set of National Safety and Quality Health Service Standards to be applied across all settings of care. The Standards are considered essential to improving the safety and quality of care for patients.

The Standards describe the systems and processes that a health service must have in place to identify safety and quality risks. This includes having effective governance systems so people know what should happen in an organisation and who is responsible for doing it. It also means that risks to patients are regularly reviewed and actions are taken to reduce those risks. There must be ongoing monitoring of systems to see if they are effective. Accreditation can test that these systems are in place and that they are reducing safety and quality risks for patients.

Accreditation of a health service in a process that includes the Standards will provide a public marker of the assessment of systems to provide safe and good quality care and will support community confidence in the healthcare system.

8. Preventing falls in older people

Falls are a significant cause of harm to older people across Australia and are responsible for unnecessary hospitalisation, increased cost and premature death. Preventing falls in older people, and reducing the harm they experience from falls, is a national safety and quality priority.

Following a comprehensive review of the previous guidelines, requested by the Inter Jurisdictional Committee, the Commission has developed *Preventing Falls and Harm from Falls in Older People: Best Practice Guidelines for Australian Hospitals, Residential Aged Care Facilities and Community Care 2009* to provide a nationally consistent and evidence-based approach to falls prevention. These Guidelines are designed to help health professionals mitigate the risk of falling for older

Australians receiving care in hospitals, residential care and the community.

The Commission encourages use of the Guidelines to improve the safety and quality of care for older Australians. Details of the Falls Guidelines, and their key messages, are being directly provided to key groups and individuals, including facility owners and managers, insurers, accrediting services, learned colleges, professional bodies and policy makers.

Ensuring that guidelines stay up-to-date is vital. A program of ongoing review is planned, culminating in the next iteration of the guidelines in 2014. The Commission will continue working with jurisdictions, consumers, clinicians, health services and other organisations to support ongoing attempts to bridge the gap between practice and evidence, to identify resources for falls prevention initiatives, and to build the evidence base for falls prevention.

9. Improving medication safety

Medications are the most used form of treatment and as they are so commonly used, they are associated with more errors, and more adverse events, than any other aspect of health care. It is estimated that around 2–3% of all hospital admissions are medicines-related. In 2006–07 there were 101,003 hospital separations associated with an adverse medicine event in Australia. The cost of medication-related admissions to hospital in Australia is estimated at $660 million per year.

For these reasons, medication safety has been identified by the Commission as a priority area. There are many organisations actively working at both national and local levels to improve the safety and quality of medications in Australia. In 2008, the Commission undertook a medication safety and quality scoping study to understand how it could best apply its resources to such a large therapeutic domain. The study found that while there is much activity to improve medication safety and quality in Australia, including with consumers, much of the work is uncoordinated, there is duplication of effort, and some important patient safety activities are either not occurring or are being implemented inconsistently.

The study recommended that the Commission provide national leadership and strategic direction for a national approach to reducing patient harm from medicines. It also recommended specific actions to improve national medication safety and quality. The Commission

systematically analysed the 45 recommendations and prioritised them along five key themes:

1. Standardisations and system improvements
2. Continuity of medicines management
3. Reducing gaps in practice
4. Using technology
5. Advocating safety and quality.

This chapter discusses each of these themes, describing the activities that have been and are being undertaken in Australia to improve medication safety.

10. Reporting for safety: Use of hospital data to monitor and improve patient safety

One of the essential tools in improving patient safety in Australian hospitals is the provision to hospitals of routine, accurate data on the severity and types of patient harm. The absence of accurate data systems with appropriate risk adjustment of rates has made measurement of harm a fraught area. The Commission proposes a multi-faceted approach to the measurement of patient safety in hospitals, to prioritise and inform safety programs, and to then monitor their effectiveness. This chapter outlines the principles of reporting for safety, and discusses the issues of measurement.

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Improving safety and quality by learning from the experience of patients

As the patient safety field has developed over the last 20 years, the focus on the measurement of patient safety efforts has increased. Patient safety measurement is difficult, with complexities including varying definitions of key concepts, lack of agreement about measurement processes, and uncertainties about how patient safety information should be used.[1] Notwithstanding this, there is an increasing realisation that an important aspect of a balanced approach to patient safety measurement is to include the experience of patients. Consequently, a patient safety measurement framework has been proposed that includes patient experience as a key component (Figure 2.1).[1]

This focus on the experience of patients as a key component of safety and quality is relatively new. However, asking patients about their experiences in receiving health care and using that information to improve services is an essential component of patient centred care, which is now being recognised as a dimension of quality in its own right.[2] In 2010 the Australian Commission on Safety and Quality in Health Care (the Commission) released a discussion paper on patient centred care for consultation, with a final report to follow in 2011.[3] This chapter does not seek to discuss the full extent of patient centred care; it particularly focuses on how to *measure* the experience of patients. It provides an overview of issues associated with the measurement of patient experience, and presents some new data from an international survey of patient experience, comparing Australia with other countries on key dimensions of patient experience.

Why is it important to learn about the experiences of patients?

An understanding of the actual experiences of patients is essential for an accurate appreciation of the overall safety and quality of care. Patients have a unique perspective regarding the health care that they receive, and can provide information and insights that healthcare workers might not otherwise have known.[4] These insights may be related to systemic and organisational issues such as the way in which appointments are made or facilities are designed. They may be related to clinical care issues arising from specific episodes of care that have implications for the wider group of patients. They may also help in the understanding and prevention of the chains of events that still, unfortunately, lead to adverse events. In many of these circumstances, it is often the patient, their family or carer who has the most complete, first-hand knowledge of the events that happened — in contrast with the healthcare team, as the membership of it may often change.

There is increasing evidence that positive patient experiences are associated with the provision of higher quality care. In hospitals, there is evidence that patients who have suffered an acute myocardial infarction and who rate their care as more patient focused have better long-term clinical outcomes than those who gave their care a lower patient focused rating.[5-6] There is also an association between patient ratings of satisfaction for their care in a particular hospital, and the quality of clinical care that the hospital provides.[7] There is increasing evidence that supporting greater patient involvement in their own care can have safety benefits in areas such as infection control and adherence to treatment regimes, as well as improved self-care and self-management.[8]

As a result, there is now an increasing emphasis on the measurement of patient experience as a driver for improving the quality of service delivery. Patient experience and feedback are relevant both at the level of assessment of overall health system performance,[9] as well as the performance of individual health services.[10] For health services, key reasons for seeking feedback from patients include:[11]

- understanding current problems in care delivery, and designing quality improvement initiatives to address them
- monitoring the impact of quality improvement initiatives
- allowing benchmarking of services or organisations
- demonstrating accountability to the public and taxpayers.

Patient Experience	Safety Learning	Staff Attitudes and Behaviour
Extent to which individual patients feel safe and trust system	Understanding why incidents occur	Relating to patient safety

Safety Performance		Safety Action
True health care related injury rates		Compliance with corrective actions

Figure 2.1 A patient safety measurement framework that includes patient experience[1]

This increasing focus on the experiences of patients, families and carers as a key dimension of quality is occurring within Australia and internationally (see Box 2.1 for an example). In 2001, the Institute of Medicine in the United States included patient-centred care as one of its six domains of quality,[2] and in the United Kingdom three domains have been identified: patient safety, clinical effectiveness and patients' experience.[12] In Australia, consumer centred care is one of three dimensions of the Australian Framework for Safety and Quality in Health Care (http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/NSQF).

Measurement of patient experience

The inclusion of patient experience and patient-centred care as key domains of quality frameworks is clear recognition of the importance of measuring the experiences of patients. Surveys are amongst the most common methods for measuring these experiences. Rather than relying on paper-based or telephone surveys, innovative methods such as hand-held devices, bedside terminals, and online and web-based tools are now being used to survey patients.[11] The use of methods such as interviews and focus groups provide further opportunities to collect information — the 'stories' that are told can be immensely powerful in raising awareness of issues and causing change.

It should be noted that the measurement of patient *experience* is different to the measurement of patient *satisfaction*. Patient satisfaction surveys became quite commonplace during the 1990s, but conceptual and methodological problems with them have been identified.[10,13] These problems include the subjective and multi-dimensional nature of satisfaction, disparities between overall ratings of satisfaction and experiences of specific aspects of care, and systematic biases in survey results (for example older patients are generally more satisfied than younger patients).[10][13] There is an increasing emphasis on the assessment of the actual experiences of patients — that is, asking questions about what actually happened to a patient during a specific healthcare episode. These types of questions provide more factual information that is easier to respond to and use to make improvements to health services.[10]

Based on original research, the Picker Institute in the United States identified eight dimensions of patient-centred care that are now used as the basis for many patient experience surveys. These include:[14]

- *Access* — including time spent waiting for admission or time between admission and allocation to a bed in a ward
- *Respect for patients' values, preferences and expressed needs* — including impact of illness and treatment on quality of life, involvement in decision-making, dignity, needs and autonomy
- *Coordination and integration of care* — including clinical care, ancillary and support services, and 'front-line' care
- *Information, communication and education* — including clinical status, progress and prognosis, processes of care, facilitation of autonomy, self-care and health promotion
- *Physical comfort* — including pain management, help with activities of daily living, surroundings and hospital environment
- *Emotional support and alleviation of fear and anxiety* — including clinical status, treatment and prognosis, impact of illness on self and family, and financial impact of illness
- *Involvement of family and friends* — including social and emotional support, involvement in decision-making, support for care giving, impact on family dynamics and functioning, and
- *Transition and continuity* — including information about medication and danger signals to look out for after leaving hospital, coordination and discharge planning, clinical, social, physical and financial support.

In Australia, patient satisfaction surveys have been performed by most states and territories, and many private hospitals for a number of years (Box 2.2). In some cases, patient experience surveys based on the dimensions identified by the Picker Institute are now being used.[15] Most of these surveys ask questions of patients who have recently received health care within a particular facility or service. The results are generally used to monitor performance, identify trends, benchmark against similar services and inform planning. These surveys are conducted with patients who have received services as inpatients through to those in community health settings. However, in general they tend to be more hospital-based, and are less likely to measure the experiences of patients receiving health care outside hospitals.

The experience of patients outside the hospital is also increasingly being examined more systematically. The Royal Australian College of General Practitioners (RACGP)

Box 2.1   Innovative ways of involving patients and carers to improve services — the NSW Health experience

NSW Health, through its Patient and Carer Experience Program, has developed a number of initiatives that aim to understand and improve patient experience. These include the collection of patient and carer stories, the NSW Health Patient Survey, Co-design and the use of near-real-time feedback from patients and staff. In 2011, NSW Health will embark on a new 'Improving Patient and Staff Experience' Program to further enhance the experience of both patients and staff.

Collecting patient stories has enabled NSW Health to better understand patient and carer experiences. This approach can be used by all services, and explores patient and carer perceptions of their care and what they actually experienced. It assists in understanding what is working well and where there can be improvement. The use of stories has proven to be a very powerful way of understanding experience. The methodology is incorporated into all new clinical re-design projects. NSW Health has developed resources to support the methodology and these are available at http://www.archi.net. au/e-library/patientexperience

The *NSW Health Patient Survey* has, since 2007, collected the experience of over 300,000 patients ranging from inpatient to community health service clients. The feedback is used locally and state-wide to improve services.

Hospital Co-design offered an opportunity for staff, patients and carers to work together in response to issues identified locally and from the NSW Health Patient Survey. As the term 'co-design' implies, Hospital Co-design involves patients, caregivers, and staff meeting to share their stories, prioritise issues for improvement and then jointly 'co-design' new processes, policies, services and facilities.

Examples of issues co-designed by patients, carers and staff include:

- improved communication strategies
- implementation of a support role for arrival, waiting room and triage processes

- redesign of clinical pathways
- enhanced coordination of the transfer of care between the Emergency Department and inpatient teams
- improved physical space, for example, a re-developed waiting room environment
- improved signage, and
- enhanced GP treatment in the community to streamline referrals to the ED.

An external evaluation of the 2009 program by the University of Technology, Sydney reported that despite the many challenges, Hospital Co-Design had made recognisable improvements to patient, carer and staff experience. Evaluation reports and other information about Patient and Carer Experience Programs are available at http://www.health.nsw.gov.au/ performance/pcexperience.asp.

It was quite eye-opening considering staff definitely thought that patients were well looked after…but when we got the nitty-gritty, we were completely misperceiving what patients thought was important in their care. (NSW Health staff member who participated in the UTS evaluation)

Early in 2009, NSW Health introduced the Patient Experience Tracker (PET). This system provides near-instantaneous feedback from patients on five targeted questions. Examples of questions include whether staff are introducing themselves by name, whether you are being treated with dignity and respect, whether pain was recognised and treated quickly, and if you received understandable information about your condition or treatment plan. For front-line staff and managers the challenge has been to collect this information on the immediate experience of patients and carers quickly and unobtrusively. The introduction of the PET handsets has shifted the power to front-line staff to make immediate improvements to the care and customer service they provide through the near-instantaneous feedback from a diverse group of patients, carers and staff.

Standards for general practices include a standard
regarding patient feedback.[16] The Standards include the
following indicators that support the collection and use of
patient experience data in individual general practices:

- Our practice actively seeks patient feedback about
  our practice and undertakes patient feedback surveys
  (with processes and content approved by the RACGP)
  of patients of the practice.

- Our practice can demonstrate improvements we have
  made in response to patient feedback.

- Our practice provides information to patients about the
  practice improvements made as a result of their input.

In 2008, for the first time, the National Healthcare
Agreement between the Australian Government and the
States and Territories included a requirement for reporting
against a set of agreed indicators, including indicators of
patient experience. These indicators relate to access to
general practitioners, dental and other primary healthcare
professionals, and nationally comparative information
about levels of patient satisfaction with key aspects of
health care received.[17] These indicators will be reported

for the first time in 2011 using data from a national patient experience survey conducted by the Australian Bureau of Statistics (ABS). The ABS survey includes people who received health care outside of public hospitals, and complements the results of the state and territory patient experience surveys. The first report of this survey was published in 2010 and the findings are summarised in Box 2.3.[18]

Commonwealth Fund patient experience survey

Each year the Commonwealth Fund, a not-for-profit organisation based in the United States, conducts an international health policy survey. In 2010, the survey examined the healthcare experiences of a sample of the general population in 11 countries, including Australia (see Box 2.4)*. The survey examined patients' overall views of the health system; access to, and use of, primary care services; use of specialists; experiences of care in the hospital and emergency department; out-of-pocket healthcare costs; use of prescriptions; existence of medical errors; and healthcare status and preventive care.

This year, the Commission funded an increase in the sample size of the survey from 1,000 to 3,000 participants, and the NSW Bureau of Health Information

funded an additional 500 participants within NSW. The increased sample size allows for more detailed analyses than would otherwise be possible.

The results of this survey add to the existing knowledge about patient experience collected through the existing state and territory surveys, and the national survey from the ABS. The Commonwealth Fund survey also allows international comparisons of the experience of patients in Australia with those in other countries. The existence of similar surveys conducted previously by the Commonwealth Fund also allows for comparisons over time.

* The Commonwealth Fund's 2010 International Survey of the General Public's Views of their Health Care System's Performance in Eleven Countries received core funding from the Commonwealth Fund, and co-funding from the following organisations: the Australian Commission on Safety and Quality in Health Care; the NSW Bureau of Health Information; the Ontario Health Quality Council; the Health Council of Canada; the Quebec Health Commission; La Haute Autorité de Santé; the Caisse Nationale d'Assurance Maladie des Travailleurs Salariés; the German Institute for Quality and Efficiency in Health Care; the Dutch Ministry for Health, Welfare and Sport; the Scientific Institute for Quality in Healthcare, Radboud University Nijmegen; the Norwegian Knowledge Centre for the Health Services; the Health Foundation; the Swedish Ministry for Health and Social Affairs; the Swiss Federal Office of Public Health; and any other country partners.

Table 2.1 Commonwealth Fund survey questions discussed in this chapter

Patient experience dimension	Issues covered by questions from the Commonwealth Fund survey
Overall views of the health system	Overall views of the healthcare system Confidence in receiving the most effective treatment and being able to afford care
Access	Barriers to healthcare services associated with cost and travel time Access to after-hours services
Respect for patients' values, preferences and expressed needs	Opportunities for asking questions Spending enough time during the consultation Involvement in decision-making
Coordination and integration of care	Availability of information at the time of consultation Repetition of tests Involvement of non-medical staff in care Coordination of care
Information, communication and education	Understandable explanations of care Provision of written information Uncertainty about purpose of medication
Transition and continuity	Availability of information during discharge and referral Follow up care after discharge
Experiences of harm or potential harm	Wrong medication or dose Medical mistake during treatment Delays in or incorrect test results

The complete international comparative results of this survey will be published by the Commonwealth Fund late in 2010. The NSW Bureau of Health Information will also publish results of this survey, focussing on the experiences of participants in NSW. This chapter examines the responses of the complete Australian sample, looking particularly at patient experience as a component of a broader patient safety measurement framework.

Patient experience as part of a patient safety measurement framework

There has been little research about what it is about the healthcare system, and within a particular episode of care, that makes patients feel safe. Although it is clear that patients can identify adverse events and errors when they occur in hospitals,[19-20] there is some evidence that patients can have a different perception of safety compared to healthcare providers, and that they may place a greater emphasis on service quality.[21] This proposition is supported by results of the patient experience survey conducted on admitted patients in NSW, which found that ratings of staff teamwork, courtesy of nurses, room cleanliness, and courtesy of admission staff were the factors that related most highly to overall ratings of patient experience.[15]

The framework used for presenting the results of the Commonwealth Fund survey is summarised Table 2.1. This framework draws on the eight dimensions of patient-centred care identified by the Picker Institute,[14] and includes the questions in the survey relating to overall views of the health systems, and experiences of harm or potential harm.

The following sections provide information about the Australian results of the Commonwealth Fund survey in these areas. Generally the performance of Australia is compared with the performance of other countries in the survey. Where possible, the results of the 2007 Commonwealth Fund survey of the general population are used to demonstrate relevant changes.[22]

Overall views on the health system

In each survey of the general population the Commonwealth Fund asks respondents about their overall views of the health system. In 2010, 24% of respondents agreed that 'on the whole, the system works pretty well and only minor changes are necessary to make it work better'; this proportion is unchanged since 2007.[22] Twenty percent of Australian respondents thought that the health system needed to be completely rebuilt. Only the United States had a higher proportion of respondents with this view (27%).

Twenty three percent of respondents were not confident that they would receive the most effective treatment if they became seriously ill, and 34% were not confident that they would be able to afford the care they needed in

this situation. Again, only the United States had a higher proportion of people expressing this view (40%).

There appears to a strong disconnect between these apparently negative perceptions of the Australian respondents in the survey and quantitative comparisons of Australian health services. In international comparisons of health service performance Australia generally performs well.[23-25] For example, the Commonwealth Fund rated the performance of Australia highest in a group of seven countries (with Canada, Germany, Netherlands, New Zealand, United Kingdom and United States) in terms of the population having long, healthy and productive lives.[23] Australia was also ranked second of this group in terms of efficiency of care, effectiveness of care and provision of patient centred care.[23] Detailed exploration of the reasons for the disparity between the perceptions of the respondents to this survey and the actual performance of the Australian health system are beyond the scope of this chapter. However contributing factors may include media focus on rare, but catastrophic, events, the often negative discourse regarding the health system, and a lack of understanding about the complexity, processes and achievements of the health system.

Access to healthcare services

Almost one quarter (22%) of respondents indicated that in the 12 months prior to the survey they had either had a medical problem but did not visit the doctor because of cost, or skipped a medical test, treatment or follow up that was recommended by the doctor because of cost, or did not fill a prescription or skipped doses of medicine because of cost (Figure 2.2). These figures have not changed substantially since 2007.[22]

Australia also had the highest proportion of respondents reporting that they did not visit the doctor because of difficulties with travel (9%). Access to after-hours care was also perceived as difficult in Australia, with 46% of respondents reporting that it was difficult or very difficult to access after-hours care without going to a hospital emergency department. This has improved since 2007, when 64% of Australian respondents reported that it was difficult or very difficult to access after-hours care without going to the emergency department.[22]

Respect for values, preferences and expressed needs

In the 2010 Commonwealth Fund survey, the questions that most closely aligned to the issue of respect for patients' values, preferences and expressed needs were those associated with having an opportunity to ask questions, having enough time to see a doctor and being involved in decision-making. Only those respondents who said that they had a regular doctor and/or a regular place of care were asked about these, and many of the other issues, in the survey. In this survey, 90% of Australian respondents indicated that they had a regular doctor and/or a regular place of care.

Generally the respondents with a regular doctor and/or regular place of care reported positive experiences to these questions. Over three quarters (76%) reported that their doctor always gave them the opportunity to ask questions, 72% reported that the doctor always spent enough time with them and 74% reported that the doctor always involved them as much as they wanted to be in decisions about care and treatment. Australia performed second or third best for these questions behind
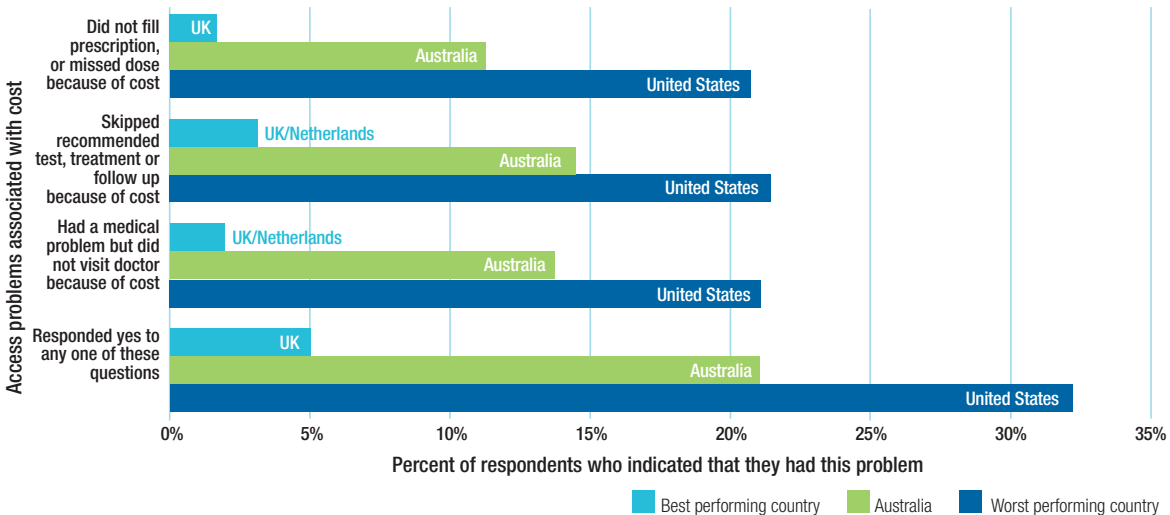

Figure 2.2 Patient experience regarding access to health care related to cost, compared to other countries

New Zealand (where reported positive responses were 81%, 77% and 77% respectively).

Coordination and integration of care

Some of the questions regarding coordination and integration of care related to the way in which care was organised. Eleven percent of respondents reported that in the previous two years there had been at least one occasion when test results or medical records were not available at the time of a scheduled appointment, and 10% reported that in that time doctors had ordered a medical test that may have been unnecessary because it had already been done. These results were very similar to those reported in 2007. Overall, 18% of respondents felt that their time had been wasted because their care was poorly organised. Only in Canada (19%) did more respondents have that view.

Respondents with a regular doctor and/or place of care were asked about coordination and integration of care at this location, and these patients reported more positive experiences. Almost half (42%) of these respondents reported that there was a nurse or other clinical staff member, other than a doctor, who was regularly involved in their health care (such as discussing test results or treatment plans). In addition, 53% of these respondents reported that their regular doctor or someone in this practice always helped coordinate or arrange the care they received from other doctors or places. Australia performed better on this question than all countries except New Zealand (57%), and there was little change in this response since 2007.[22]

Information, communication and education

Australian respondents generally reported positive experiences regarding information, communication and education. Of the respondents with a regular doctor and/ or place of care, 77% reported that the doctor always explained things in a way that was easy to understand.

Some questions in the survey related to information about prescription medications for respondents with a regular doctor and/or place of care who were taking at least one prescription medication. Over half (54%) of the Australian respondents were taking one or more prescription medications. Seventy eight percent of these respondents reported that in the previous 12 months a doctor or other staff member at their regular place of care had reviewed the medications they took, including those prescribed by other doctors. Three-quarters (78%) also reported that potential side effects of any medication were explained to

them in this period, and 52% reported that they had been given a written list of prescribed medications. Australia performed best for medication reviews and explanation of side effects, and second best regarding the provision of a written list of medications (behind the United States on 53%). Only 4% of all respondents reported that when they had received a prescription for a new medication in the last two years they did not know what it was for.

Transition and continuity

A number of questions related to information that was available when care was transferred between primary and acute healthcare services. Not all respondents were asked all questions: some only applied if respondents had visited specialists, been admitted to hospital for an overnight stay or been treated in an emergency department. Some questions applied only to people who had a regular doctor and/or place of care.

Australian respondents generally reported positive experiences regarding continuity of care, and the information that was available at the transition between different care settings (Figure 2.3). For most respondents (87%), information about the reason for a specialist visit or about test results was available from their regular doctor or place when visiting a specialist, and information was also generally available for that doctor about the specialist visit (78%). When leaving hospital, 77% of respondents reported that they received an explanation about the purpose of the medications they were taking, and 76% reported receiving written information about what to do when they returned home, and what symptoms to watch for. This has increased substantially since 2007 when only 40% of respondents reported that they were given a written plan or instructions to manage their care at home.[22] For respondents who had been discharged from hospital, 77% reported that their regular doctor was up-to-date about the care they received in hospital. Sixty three percent of those who had visited the emergency department reported that their regular doctor was up-to-date about the details of this visit.

Experiences of harm or potential harm

Some respondents reported incidents of harm or potential harm. Four percent of Australian respondents reported that they had been given the wrong medication or wrong dose by a doctor, nurse, hospital or pharmacist in the previous two years, and 8% reported that they thought that a medical mistake had occurred in their treatment or care in that time. Six percent of respondents who had had any blood tests, X-rays or other medical tests in the

last two years (83% of the Australian sample) reported that they had experienced delays in being notified about abnormal test results and 2% reported having been given incorrect test results. The percentage of respondents reporting these incidents has decreased since 2007, at which time 8% thought that they had been given the wrong medication, and 11% reported a medical mistake associated with their care.[22]

How can this information be used to improve safety and quality?

The increasing focus on patient centred care as a fundamental dimension of quality has emphasised the importance of asking patients about their experiences in health care. The inclusion of patient experience as a dimension of a patient safety measurement framework provides the basis for improvement at various levels, from individual clinical units to national health systems.[1] The way in which information about the experiences of patients is used to improve safety and quality at a national level differs from the use of this information at a facility or service level. For services and facilities, there is a direct relationship between reports of experiences from people who receive health care and consideration of actions that may be needed to improve safety and quality in these facilities. At a national level this relationship is not so readily apparent, and the drivers to improve safety and

quality are different. These national drivers can include monitoring the performance of the health system; public reporting on performance and setting benchmarks and targets; accreditation and regulation; financial incentives for processes and outcomes associated with high quality care; and the development of policies and programs that target specific aspects of safety and quality.

In Australia, patient experience has been included as one aspect of health system performance that is being monitored through the indicators in the National Healthcare Agreement. Data from the ABS patient experience survey will be used to report against these indicators in 2011, and in future years there will be the possibility of comparing performance by state and territory.[17] Australia's participation in the Commonwealth Fund international health policy surveys also provides the opportunity for comparison of health system performance at an international level. Currently there are efforts underway within the Organisation for Economic Co-operation and Development (OECD) to standardise the use of healthcare quality indicators, including patient experience measures, across member countries.[26]

The need for an agile and self-improving health system was identified as one of three fundamental reform goals by the National Health and Hospitals Reform
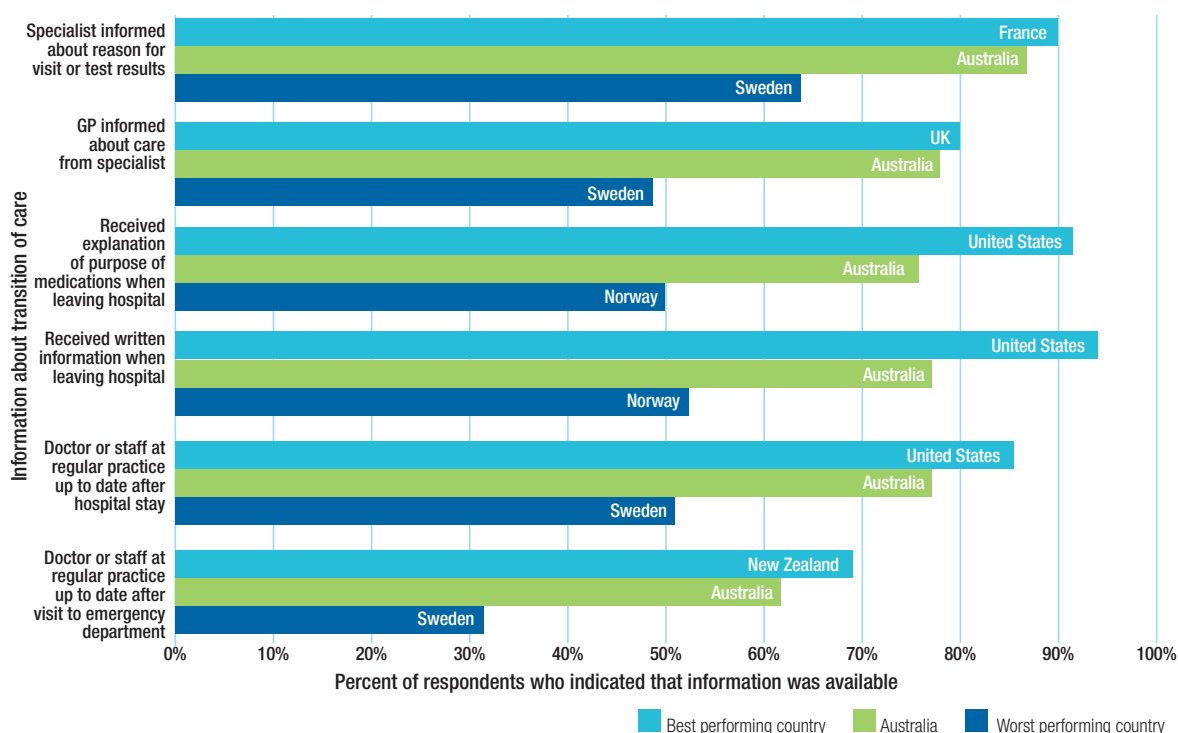
Figure 2.3 Patient experience regarding information at transitions of care compared to other countries

Commission.[27] It was recognised that creating such a system required, among other things:

- strengthening the role and voice of consumers and patients within the health system
- using data and information effectively to improve both the care provided to patients and the health system as whole
- embedding evidence-based improvement, innovation and research into the delivery and organisation of health services.

Learning from the experiences of patients allows each of these elements to be addressed in a unified way. Such an integrated approach could contribute significantly to the development of an agile and self-improving system that will be better able to provide safe and high quality care.

Patient experience is a vital source of information about performance of the health system, from an individual to a national scale. This information can reveal issues — and successes — that may be otherwise obscured. It is an important perspective that needs to be routinely measured so that an accurate picture of the safety and quality of care is obtained.

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3

Addressing antibiotic resistance

Seventy years ago, with the discovery of penicillin, it was thought that illnesses such as meningitis, pneumonia and other infectious diseases might become diseases of the past. Subsequently further antibiotics were discovered and produced. However, at a time when more patients are undergoing organ transplantation or chemotherapy for cancer and depending on antibiotics for their survival, bacterial resistance to currently available antibiotics is now becoming increasingly frequent in both hospital and community settings. Resistance to entire antibiotic classes is emerging rapidly. Infections such as tuberculosis are becoming harder, rather than easier, to treat. The use of penicillin is now becoming obsolete in Europe.[1-2]

Resistance to antibiotics presents a major challenge to health care as resistant bacteria dramatically decrease the chance of effectively treating infections and increase the risk of complications and death. It is estimated that 2 million patients acquire healthcare-associated infections (HAI) each year in Europe,[3] of which over half are drug resistant.[4] Patients are twice as likely to die of their infections if resistant.[5]

What is antibiotic resistance?

Resistance can be defined as a bacteria's ability to survive and even replicate during a course of treatment with a specific antibiotic. Failure to resolve an infection with the first course of antibiotic treatment may mean that the infection spreads, becomes more severe, and more difficult to treat with the next antibiotic that is tried.[6] One of the most common and well-known resistant organisms is methicillin resistant *Staphylococcus aureus* or MRSA.

What has happened so that some infections are becoming fatal again?

Antibiotic resistance is largely caused by the overuse and misuse of antibiotics. It is a complex process by which bacteria evolve and develop properties that render the drugs designed to kill them ineffective.[6] The use of antibiotics kills susceptible bacteria, but those that do resist can survive and multiply, replacing the eradicated bacteria[7] — the resistant bacteria can then continue to grow and spread resistance.[8]

The increased spread of antibiotic resistance is associated with increased antibiotic usage and inappropriate prescribing.[9] This has been largely caused by:

- patients' insistence on antibiotics, even where inappropriate or unnecessary
- doctors who prescribe antibiotics before undertaking diagnostic tests
- doctors who do not explain to patients why antibiotics are unnecessary
- over-cautious doctors prescribing antibiotics for viral infections
- over-prescribing of broad spectrum antibiotics.[10]

Antibiotic resistance has been increasing at the same time as pharmaceutical companies have decreased their research and development of new treatments. While some small gains are being made to increase the supply of new drugs, it is unlikely that new drugs will be on the market within the next 10 years. Figure 3.1 demonstrates the closing gap between the year the antibiotic is first used to the time of first reported case of resistance.

Cost of resistance

Some of the notable costs of antibiotic resistance are:

- direct medical costs — hospitalisation for treatment, longer hospital length of stay, increased cost of services, isolation and infection control measures,

Note: Some of the dates are estimates only
Source: Pray 2008

Year introduced into clinical use ●   Time to first reported case of resistance ⟶
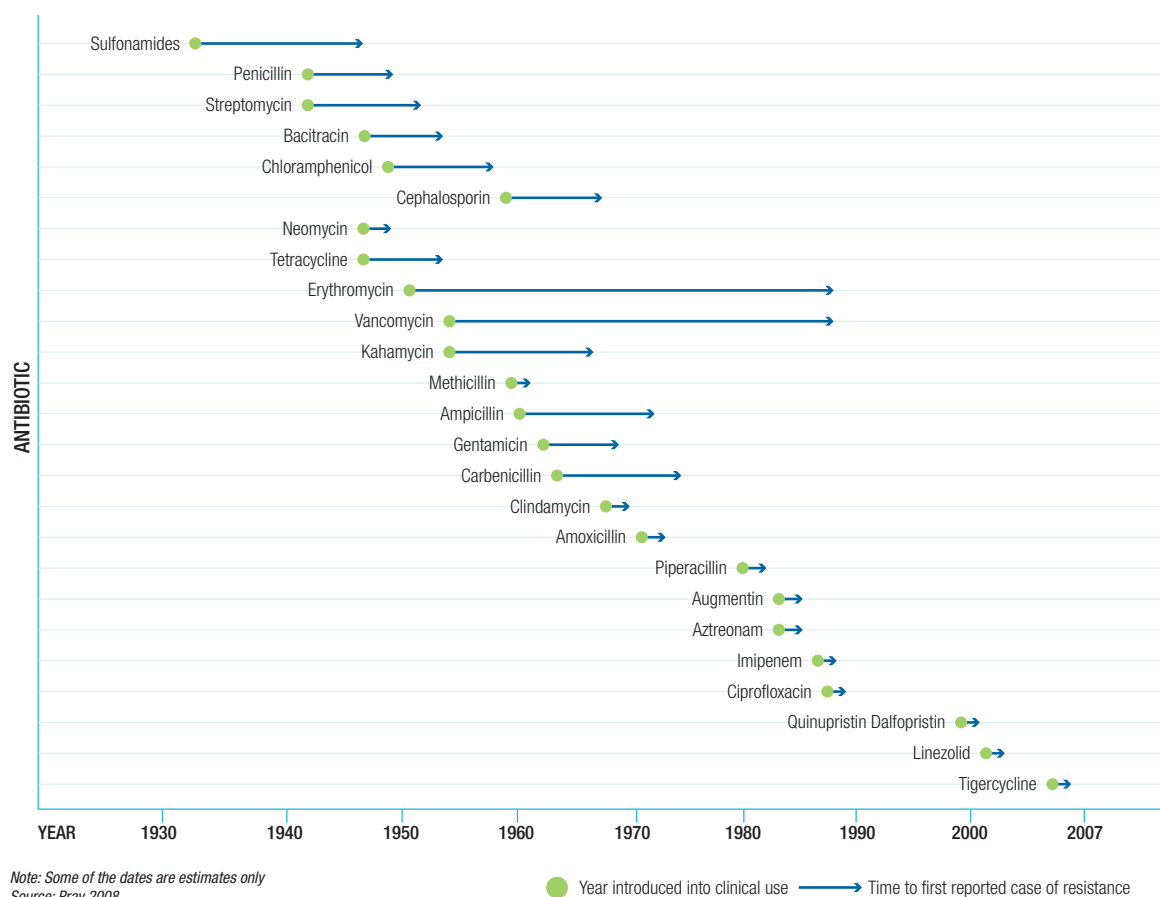
Figure 3.1 Timeline of the rapid rate of resistance[11]

increased frequency of surgical intervention and other complications

- organisational and infrastructure costs — maintaining surveillance programs and central reference laboratories

- indirect costs — lost earnings from morbidity and mortality.

What can be done to address the problem of antibiotic resistance?

Antibiotics are a precious global commodity and so a global response is required to support national and local initiatives. The World Health Organization (WHO) has been active in promoting awareness of antibiotic resistance. It is making it an organisation-wide priority and it is the focus of World Health Day 2011. These activities will enable the WHO to better coordinate the efforts of the wide range of individuals and organisations involved in and affected by antibiotic resistance. The problem of antibiotic resistance will be the subject of a year-long global campaign, with the WHO expected to release its Action Plan on Antibiotic Resistance in 2011.

In 2009, at a United States and European Union summit held in Washington, DC, President Barack Obama and Swedish Prime Minister Fredrik Reinfeldt, representing the EU Presidency, joined forces to establish a trans-Atlantic Task Force to address antibiotic resistance. Under this agreement, the Task Force is focusing on ensuring appropriate therapeutic use of antibiotic drugs in the medical and veterinary communities, prevention of both healthcare and community-associated drug-resistant infections, and strategies for improving the development of new antibiotic drugs. A report from the Task Force will be presented at the 2011 US/EU summit.

More recently, at a meeting of ReAct, the international network for Action on Antibiotic Resistance, delegates from 45 countries including Australia, agreed to speed up the efforts to limit the unnecessary use of antibiotics and to improve the monitoring of antibiotic resistance.[12]

Options for addressing antibiotic resistance

A number of strategies have been identified that minimise the risk of antibiotic resistance. These include the

collection and monitoring of resistance data to inform stakeholders and change practice, improvement in hand hygiene compliance and antimicrobial stewardship (AMS). The benefits of AMS were reported in the Commission's *Windows into Safety and Quality in Health Care 2009*.[13] This chapter focuses on the measurement of resistance and antibiotic usage.

What is happening in Australia?

The seriousness of the antibiotic resistance problem in Australia came into national focus in 1998 when the Australian Health and Agriculture ministers established the Joint Expert Technical Advisory Committee on Antibiotic Resistance (JETACAR). Other committees such as the Expert Advisory Group on Resistance (EAGAR) also recommended an integrated management plan for antibiotic resistance in Australia, including research, monitoring and surveillance, education, infection control, and regulation.

The Australian Commission on Safety and Quality in Health Care (the Commission) has initiated a range of projects that aim to reduce the rate of resistance. These include:

- the national hand hygiene initiative (http://www. hha.org.au) which is now being undertaken in all states and territories and many private hospitals (see Box 3.1)

- *the Australian guidelines for the prevention and control of infection in healthcare* (http://www.nhmrc.gov.au) accompanied by a suite of implementation resources have been produced in collaboration with the National Health and Medical Research Council

- evidence-based documents to assist hospitals with establishing antibiotic stewardship programs, and

- development of education modules to assist staff who undertake infection control and prevention in small, rural facilities, often as part of other clinical duties.

Despite the existing work of the Commission and other activities described in this chapter, the inability to produce national reports on antibiotic use and resistance remains due to the lack of a central system for data collation and analysis.

Monitoring antibiotic use

Data related to antibiotic use in hospitals has been used to promote positive health outcomes in several ways. Firstly, by providing an Australian peer group benchmark, hospitals can compare their usage with similar hospitals and identify areas of antibiotic use requiring more in-depth analysis. Overall high usage of antibiotics has been used by hospitals and area health services as a stimulus for initiation or expansion of AMS programs. High use of particular classes of antibiotics has triggered individual drug audits and has been used to tailor interventions. Secondly, longitudinal antibiotic usage data has been used by hospitals to measure the effects of AMS strategies and provide feedback to prescribers, thereby feeding back to and altering clinical practice

Community

As the drivers for antibiotic resistance are likely to be different in hospitals when compared with that in the community, it is important that usage should be monitored in both hospital and community settings. At the community level, there is already a well-established system for monitoring usage rates. The Drug Utilisation Subcommittee of the Pharmaceutical Benefits Scheme collates figures annually on prescription volumes of all drugs subsidised by the Scheme, and supplements this with a large sample taken from contributing retail pharmacies through the Pharmacy Guild of Australia, which captures non-subsidised prescription volumes. Estimates are also made of prescription volumes.
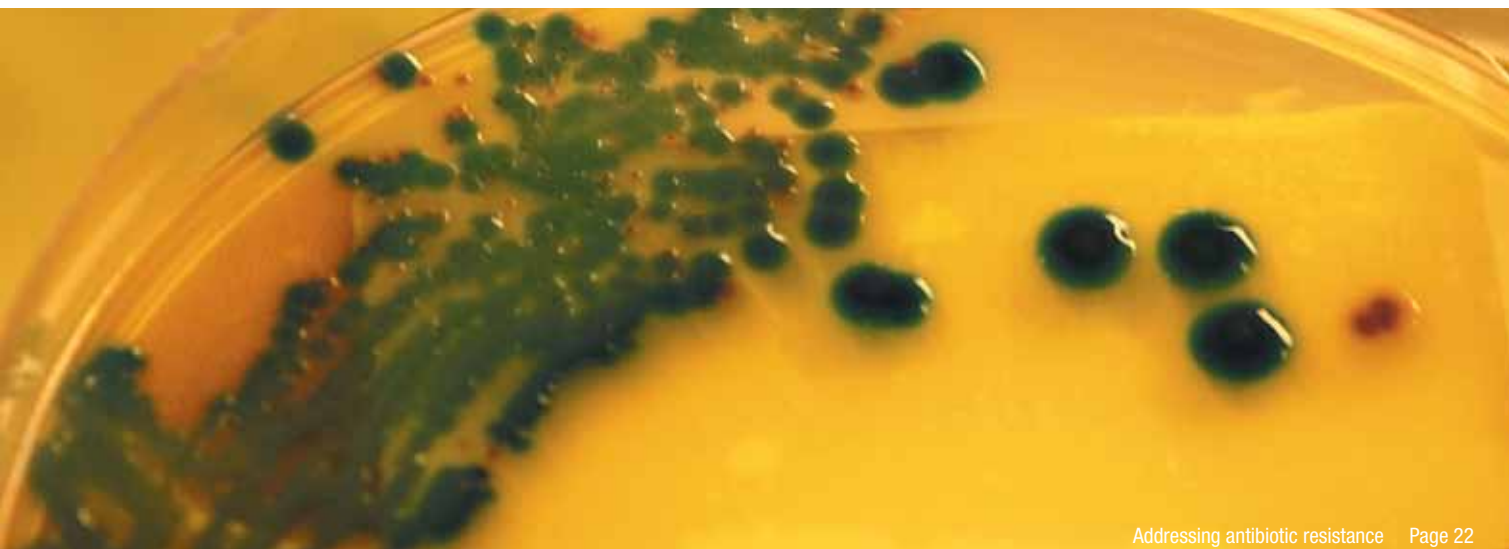
The nature of the data collection is such that it is actually dispensing rates of antibiotics, rather than how much is consumed. This system does not capture the appropriateness of usage, but provides an excellent overview of trends in prescribing. A noticeable decrease in per capita prescribing has been seen between 1993 and 2003, but since then prescribing rates in the community have been rising steadily again.

Hospital

The National Utilisation Surveillance Program (NAUSP) collects aggregate data from hospitals in all Australian states and territories and provides reports of monthly hospital inpatient antibiotic usage to contributing hospitals. Surveillance data on antibiotic usage provides information for determining the impact of usage patterns on bacterial resistance. Such data are also important for supporting containment strategies, such as AMS programs. Antibiotic usage data can be used to guide safety and quality improvements at the local level by a hospital or health service, as well as providing useful data at state and national levels.

National antibiotic usage data allows contributing hospitals to compare their usage with peer group hospitals, identify trends in prescribing requiring further investigation, and in measuring the effectiveness of AMS programs, including cost savings. The regular feedback is a useful tool for educating prescribers and monitoring the effect of targeted interventions.

State and national level

To date antibiotic usage data have not been fully utilised to initiate interventions at the state and national level. There is the potential to use the information to:

- Examine trends in hospital antibiotic use at state and national levels as the basis for larger scale interventions to rationalise hospital antibiotic prescribing.
- Provide an Australian peer group benchmark, and to enable comparison with international data (it is known that aggregate use of antibiotics is higher in Australia than that reported by several European surveillance programs).[14]
- Provide longitudinal antibiotic usage data which may be used to demonstrate links between antibiotic use and resistance.

Monitoring antibiotic resistance

Antibiotic stewardship is needed to counter the ability of micro-organisms to develop and share resistance to antibiotics. There is currently no practical way of routinely gathering data on poor clinical outcomes which are also subject to a variety of other clinical factors apart from antibiotic resistance. Surveillance can potentially be undertaken at a local, regional or national level.

Local surveillance measures

The desired outcome of surveillance is to prevent increase in antibiotic resistance and the best measure of this is to monitor trends in cumulative antibiotic susceptibility testing results. Trend data can point to potential associations with antibiotic usage, breakdowns in infection control or the introduction of new antibiotic resistant strains. It can highlight areas requiring more intense investigation or 'active surveillance'. Active surveillance is already undertaken under the auspices of the Department of Health and Aging by the Australian Group for Antimicrobial Resistance (AGAR) (http://www. agargroup.org/) and the National Neisseria Network. Targeted surveillance can deal with issues such as strain typing and identification of resistance mechanisms, and can identify problems for intervention. Both passive and active surveillance can also be used to monitor the effectiveness of specific interventions. Thus resistance surveillance is an essential element of any comprehensive program of antibiotic stewardship.

The best available indicator of emerging bacterial resistance to antibiotics at a local level is the surveillance of antibiotic susceptibility testing results. Every surveillance program requires collective analyses of antibiotic resistance derived from laboratory testing data (commonly called antibiograms), particularly — but not exclusively — at the local level. Ideally, clinicians should be able to review collated information about the infections they, their services or their facilities are seeing and treating. They need to have information about the organisms isolated and the antibiotic susceptibility results where relevant. Antibiograms consist of cumulative antibiotic susceptibility test data analysed and reported at a local, regional or national level. Careful analysis of antibiograms can provide information for the construction of formularies and for the development and validation of local and national prescribing guidelines. Collated resistance data in the form of antibiograms can also be used to guide empirical therapeutic decisions on individual patients at the local level, and the development

Box 3.1   Update on progress of the national approach to the monitoring of hand hygiene

The National Hand Hygiene Initiative (NHHI) has commenced in all states and territories as well as the private sector. The guiding objectives of the NHHI are to:

- develop reliable indicators
- accurately measure performance in hand hygiene
- obtain and sustain improvement in hand hygiene compliance rates and reductions in HAI and to make HAI prevention 'core business' of all healthcare workers.

Data on hand hygiene compliance rates are submitted through state and territory coordinators three times yearly in April, August and November. Specifications for direct data entry and reporting of hand hygiene compliance rates have been developed which will provide stratified data at hospital, regional and state and territory level.

A standardised hand hygiene compliance assessment form is used for all assessments with training in the hand hygiene compliance assessment tool, data collection, data entry and data analysis provided for all participating hospitals by Hand Hygiene Australia. Rates of hand hygiene compliance are assessed and reported according to a number of specified criteria, including by healthcare professional and type of activity performed.

An online data management system has been developed. This is a significant step towards the sustainability of the national hand hygiene initiative and should result in an efficient data management process, including easier data input and timelier reporting. The application is free for all participating sites to access, provided an internet browser is available at the facility.

Following its release, over 100,000 healthcare workers have undertaken the online learning package. In some hospitals and regions, the completion of the package has been introduced as a prerequisite for all healthcare workers prior to commencement of employment. Hand Hygiene Australia has commenced development of a high level online learning package specifically aimed at clinical healthcare workers involved in direct care.

Collection of hand hygiene compliance data

The number of hospitals submitting data is steadily increasing. Hand hygiene compliance data has been obtained from 449 hospitals, of which 77 are from the private hospital sector, in the most recent collection period (May–August 2010). This demonstrates a significant increase from 290 participating hospitals across Australia in November 2009. Hand hygiene compliance data are submitted from sites in all jurisdictions using the same measurement tool.

1. *Comparison of compliance rates by jurisdiction including national data and the private sector*

   Comparison of compliance rates by jurisdiction including national data and the private sector from 2009–10 YTD (Figure 3.2) shows an upward trend in most jurisdictions towards 70% or exceeding 70% compliance. Queensland, which had an 11 opportunities program, has completed the introduction and training for the 5 Moments and will submit data for publication from the September–December 2010 audit.

2. *Compliance by healthcare workers groups in public facilities*

   Data on compliance by healthcare workers groups in public facilities shows (Figure 3.3) that nurses/midwives, allied health, invasive technicians show the highest rates of compliance (between 63% and 73%) than other healthcare workers groups assessed. This is important when considering risk for patients as these groups of healthcare workers have higher and more significant contact with patients and surroundings. Specifically:

   - Nurses/midwives contribute the largest number of moments to the data with 129,953 moments evaluated and achieving 73% correct compliance with hand hygiene.
   - Medical officers were assessed in 29,655 moments and achieved 51.5% compliance for this reporting period.
   - Student doctors reported better compliance rates but the number of moments assessed was small in comparison with only 1,928 moments assessed.

3. Compliance rates by moment

Figure 3.4 demonstrates that moments 1 and 2 (those before touching a patient or undertaking a clinical procedure) show lower compliance, 61% and 65% respectively, than moments 3 and 4 (those after touching a patient or undertaking a procedure) which exceed 75%.

This suggests that healthcare workers are more concerned with their own safety than the safety of patients and is consistent with international data. The lowest compliance rate was for Moment 5 (58%) — after touching a patient's surroundings. The compliance rates by moment in the public and private facilities are similar.

4. Compliance rates in private hospitals

Since January 2009, the number of private hospitals facilities submitting data to the national programme increased from 2 to 77. Data from private facilities now contribute 17% of the total with more than 38,000 moments evaluated.

National Hand Hygiene Compliance rates
Audit periods 1,2 & 3 2009 and 1 & 2 2010 – Hand Hygiene Australia

Period 1 2009 (n=105) Period 2 2009 (n=168) Period 3 2009 (n=290) Period 1 2010 (n=322) Period 2 2010 (n=449)
n=number of facilities submitting data

* Queensland has completed training for the 5 Moments program and will submit data for publication from period 3, 2010
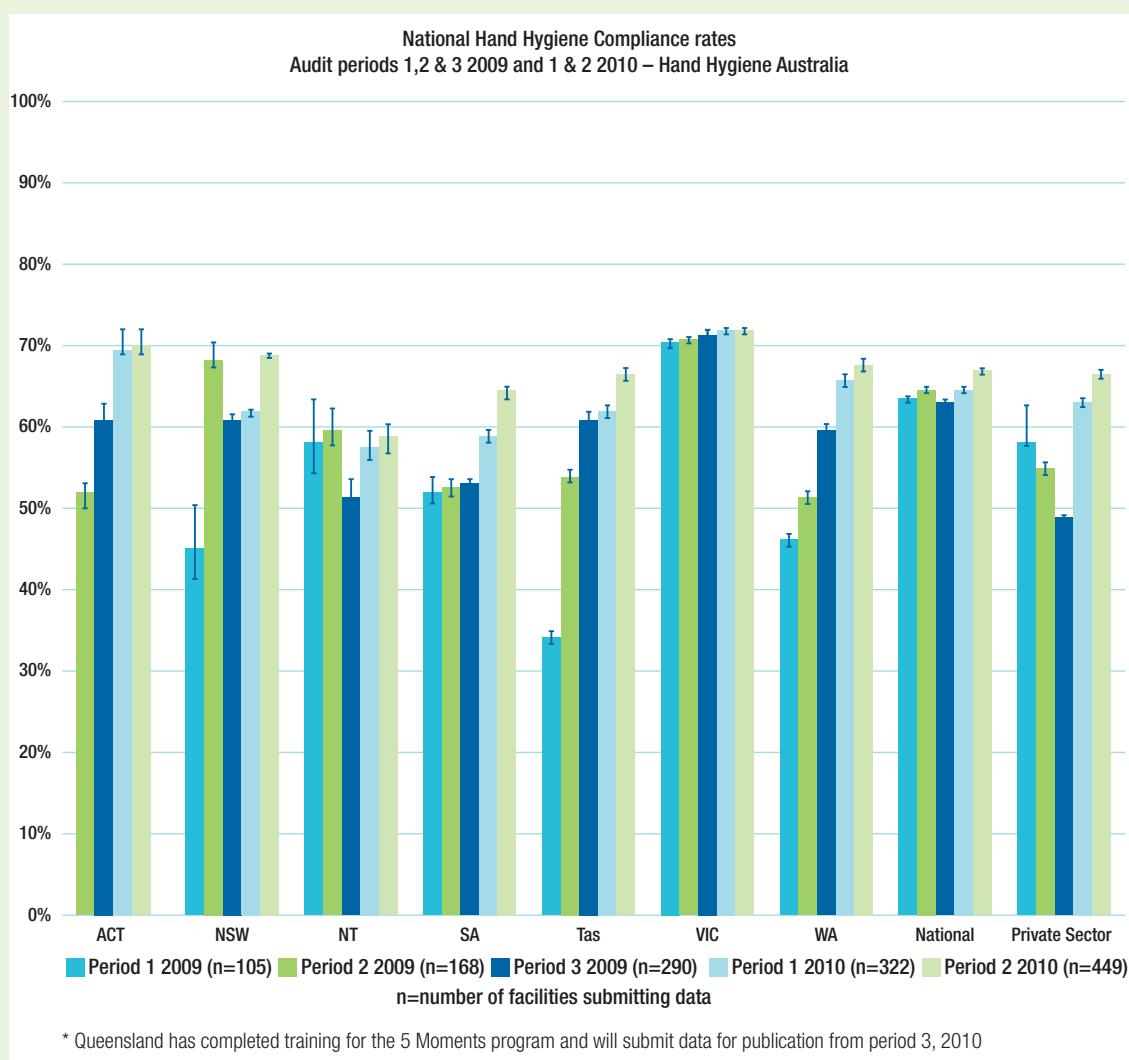
Figure 3.2. Comparison of compliance rates by jurisdiction including national data and the private sector

National Hand Hygiene Compliance Rates by HCW – 372 Public Facilities
Period 2 (May-July) 2010, Hand Hygiene Australia

Healthcare Worker category (n=number of Moments)

• Incomplete data sent
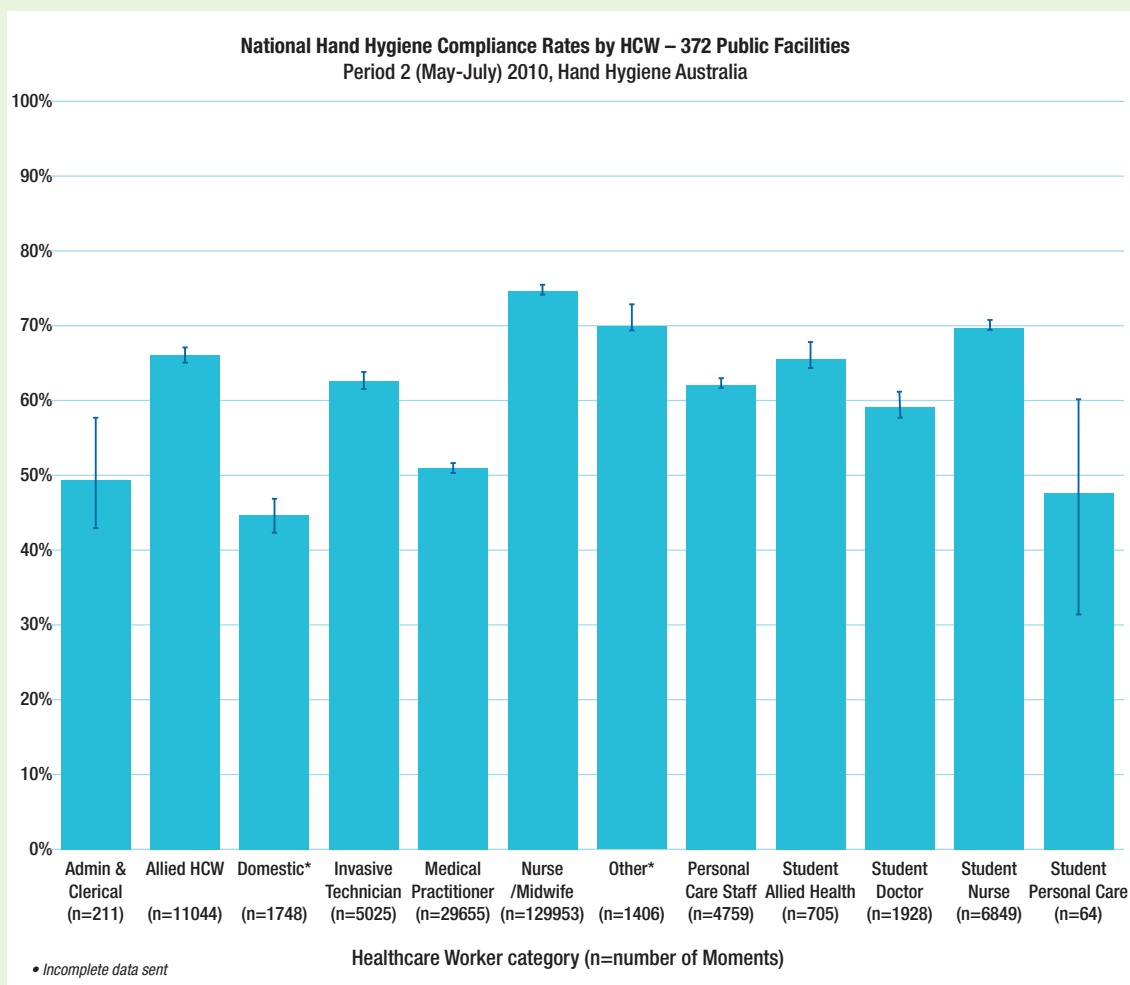
Figure 3.3. Compliance by healthcare workers groups in public facilities

National Hand Hygiene Compliance Rates by Moment – 372 Public Facilities
Period 2 (May-July) 2010

Moment (n=number of Moments)

• Incomplete data sent

Figure 3.4. Compliance rates by moment

and updating of treatment guidelines at the local, regional or national level.

National resistance surveillance

Although local information is critical to the success of the local stewardship program, the numbers of isolates available for analysis are often too low for valid statistical analysis. This means that information needs to be collated across laboratories and healthcare facilities to allow for meaningful analysis. Standardisation of susceptibility testing is therefore a prerequisite for aggregation and comparison of results.

It is recommended that a process be developed to select an appropriate national method for susceptibility testing and surveillance of antibiotic resistance. The aim of such a process would be to achieve a single national standard for susceptibility testing, and a national system of electronic antibiotic resistance surveillance of all susceptibility results performed in clinical pathology laboratories public and private. The best example of national resistance surveillance currently in place is the Danish Danmap system (http://www.danmap.org) that monitors both antibiotic susceptibility testing results and antibiotic usage.

Since 2004, the Australian Government has provided funds for the Australian Group on Antimicrobial Resistance (AGAR). AGAR is a collaboration of clinicians and scientists from major microbiology laboratories around Australia. AGAR collects and tests information on the level of antibiotic resistance in bacteria that can cause important and life-threatening infections around Australia. The main objectives of AGAR are to maintain a representative network of sentinel diagnostic laboratories performing antibiotic resistance monitoring according to standardised methods across Australia, to identify new resistance mechanisms and multi-resistant clones at an early stage and prevent their dissemination, and to provide a process of early detection and prevention of future outbreaks.

How might the linkage between usage and resistance improve patient safety?

The key to our understanding of antibiotic resistance, how it evolves and its relationship to antibiotic selection pressure, is to have in place monitoring systems for both resistance *and* antibiotic usage. Therefore, the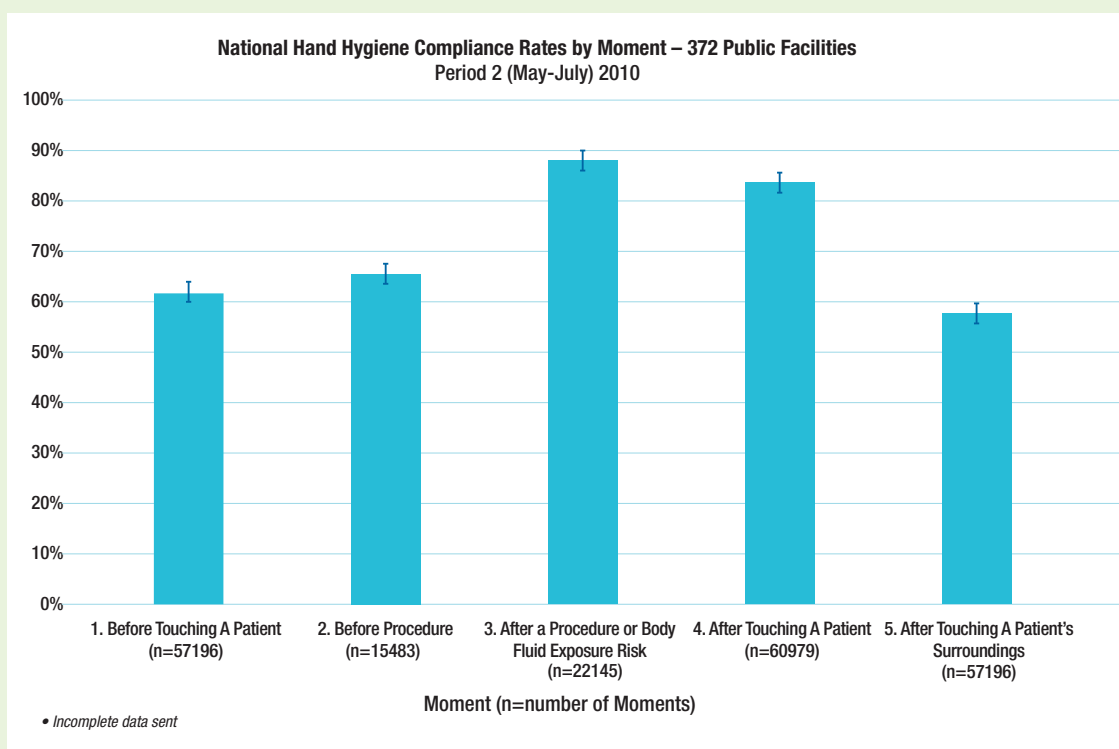 monitoring of both resistance and usage are vital in determining whether the interventions to control antibiotic resistance are working.

Future directions

Antibiotic resistance is a consequence of antibiotic use. Antibiotics need to be used less frequently and more prudently. Surveillance of antibiotic resistance is needed to target interventions for minimising antibiotic use.

There is currently a limited national program for monitoring antibiotic use in Australia hospitals: only a subset of Australian hospitals contribute. Despite these limitations, the data gathered have allowed benchmarking with some European countries with similar monitoring programs. The program does allow for feedback to individual institutions and provides of breakdown on intensive care unit (ICU) versus non-ICU usage.

Comparison of national usage data with international data indicates that Australian hospitals are relatively high users of antibiotics when compared with their Northern European counterparts. The national focus on implementing AMS programs in hospitals currently being led by the Commission is aimed at improving patient safety by reducing inappropriate antibiotic prescribing and by reducing HAI from resistant organisms. Antibiotic usage data, is useful for monitoring the effect of these programs on influencing antibiotic prescribing at hospital, state and territory, and national levels.

The documentation and understanding of trends in resistance patterns in Australia will support more rational use of antibiotics. However, there is still no national program to draw together data on the incidence and prevalence of multi-resistant organisms in Australia with data on antibiotic usage. There is potential to further utilise the data including linking longitudinal usage data with resistance data, at national and hospital level, to identify reduction in resistant organisms and emerging patterns of resistance.

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4

Safe and high quality health care for Aboriginal and Torres Strait Islander peoples:
A perspective from the Kanyini Vascular Collaboration

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Ensuring Aboriginal and Torres Strait Islander people
have equitable access to safe and high quality health
care is an ongoing challenge for the Australian
healthcare system. This chapter highlights the important
contribution of comprehensive primary health care to
addressing this challenge. It focuses on the work of
several Aboriginal Community Controlled Health Services
(ACCHSs) and one state government mainstream service.
The ACCHS movement, now 40 years old, grew from a
community-driven need to provide primary health care
that is respectful and responsive to the needs and values
of Aboriginal and Torres Strait Islander communities.[1]
Consistent with the 1978 World Health Organization's
Alma-Ata Declaration, ACCHSs seek to provide 'essential
health care based on practical, scientifically sound,
socially and culturally acceptable procedures and
technology made universally accessible to communities
as close as possible to where they live through their
full participation in the spirit of self-reliance and
self-determination'.[1]

ACCHSs are initiated and governed by a local Aboriginal
and/or Torres Strait Islander community.[2] The Department
of Health and Ageing, through its Office of Aboriginal and
Torres Strait Islander Health (OATSIH), provides funding
to around 200 Aboriginal and Torres Strait Islander
community-controlled or managed health services in
all Australian states and territories.[3] It is estimated that
these services provide health care to at least 50% of
the Aboriginal and Torres Strait Islander population.[4]
This sector, therefore, plays an important role in the
delivery of accessible, safe and high quality care for
this population.

The Australian Safety and Quality Framework for Health
Care, developed by the Australian Commission on Safety
and Quality in Health Care, offers a vision for health
care that is consumer centred, driven by information
and organised for safety. This chapter describes some
activities in the primary healthcare sector that are based
on these principles. These are presented as a series of
case studies from the perspectives of the Kanyini Vascular
Collaboration (KVC) and three of its health service
partners (Box 4.1).

Is the care consumer centred?

Health services that are driven by Aboriginal and Torres
Strait Islander community participation are well placed to
deliver consumer centred care. Whilst healthcare access
remains a core mission for these services, there is an
enduring commitment to ensuring that care is oriented

Photo courtesy of Baker IDI Heart and Diabetes Institute

Safe and high quality health care for Aboriginal and Torres Strait Islander peoples: A perspective from the Kanyini Vascular Collaboration   Page 30

Box 4.1   Overview of the Kanyini Vascular Collaboration

KVC is a long-standing partnership between leading health services researchers, policy-makers and several urban, regional and remote ACCHSs and one government mainstream health service. It is primarily funded by the National Health and Medical Research Council (NHMRC). The collaboration's main objective is to improve health outcomes for Aboriginal and Torres Strait Islander people with, or at risk of, cardiovascular diseases, chronic kidney disease and diabetes. Collectively these conditions contribute to a substantial proportion of the avoidable disease burden experienced by Aboriginal and Torres Strait Islander peoples.[5] KVC seeks to identify and develop strategies of care that address health systems or service barriers.

'Kanyini' is an important philosophical term used by a number of language groups in Central Australia, and can be translated as 'to have, to hold and to care'.

As a collaboration, it was felt that responsibility to care, as enshrined within the principles of Kanyini, was an important touchstone for examining the way in which health systems catered for the expressed needs of patients and communities.

Participating health services are located in New South Wales, Queensland and Central Australia. The two main coordinating bodies are The George Institute for Global Health in Sydney and the Baker IDI Heart and Diabetes Institute in Alice Springs. A key feature of the research agenda is the use of mixed methods of research, combining quantitative and qualitative methodologies to answer questions on how to provide better systems of care. The research objectives are outlined in Figure 4.1.
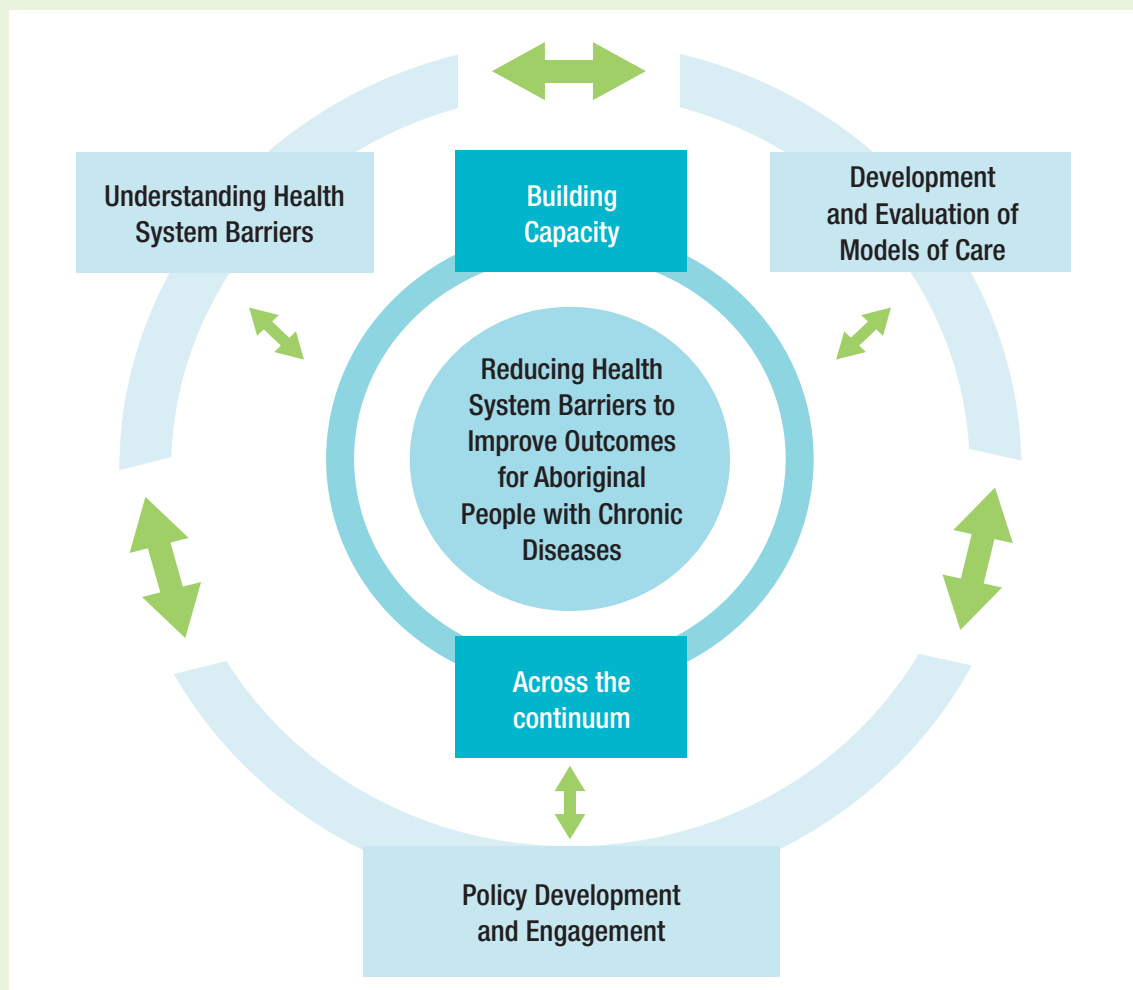

Figure 4.1 Research objectives

toward meeting the holistic health needs of patients.[1] Examples include the development of prevention programs provided across the life course, social and emotional well-being services, housing support, transport services, maternal and child health services, dental care, optometry, allied health services, specialist outreach, and improved access to and quality use of medicines.[6] Two case studies from both the government and ACCHS

sector, detailed below, illustrate how services can be reoriented to ensure consumer centred care.

Is care driven by information?

The Aboriginal and Torres Strait Islander Health Performance Framework is the most comprehensive reporting mechanism on health systems performance in Australia.[14] It draws on a variety of data sources to

Case study 1: Inala Indigenous Health Service

Inala Indigenous Health Service (IIHS) is a Queensland Government health service in South Brisbane. Despite constituting a large proportion of the local community, only 12 Aboriginal and/or Torres Strait Islander patients accessed the Queensland Health General Practice Unit in Inala in 1994. By 2008 this figure had grown to 3,006.[7] Following a series of focus group consultations with the community, several strategies were undertaken to enhance access and utilisation. Some important factors included the appointment of more Aboriginal and Torres Strait Islander staff to the health service, the involvement of local elders in service planning, and the creation of welcoming physical spaces to allow people to feel more comfortable when seeking health care. The spectacular improvement in attendance has resulted in IIHS now conducting over 13,000 doctor consultations per year for approximately 4,000 registered clients (Figure 4.2). In 2007, the IIHS separated from the General Practice Unit, and is now a stand-alone service.

It has been recognised by the Australian Government and state governments as an outstanding health service delivery unit and this year received two National Indigenous Health awards.[8]

Overcoming barriers to access was a critical step in allowing IIHS to shift its focus toward improving the quality of health care. One key strategy to improving care has been to maximise the uptake of Medicare Health Assessments and Chronic Disease Management Items. These initiatives allow for preventive health checks to be performed across all age groups and for the creation of multidisciplinary care plans to guide care for patients with chronic conditions. Regular audits of clinical data from these services provide important information on health status. This information has been valuable in assisting with health service planning. It has resulted in marked improvements in screening for chronic diseases, coverage of pap smears, vaccination rates, specialist referrals, and earlier diagnosis and intervention for chronic conditions.[9]
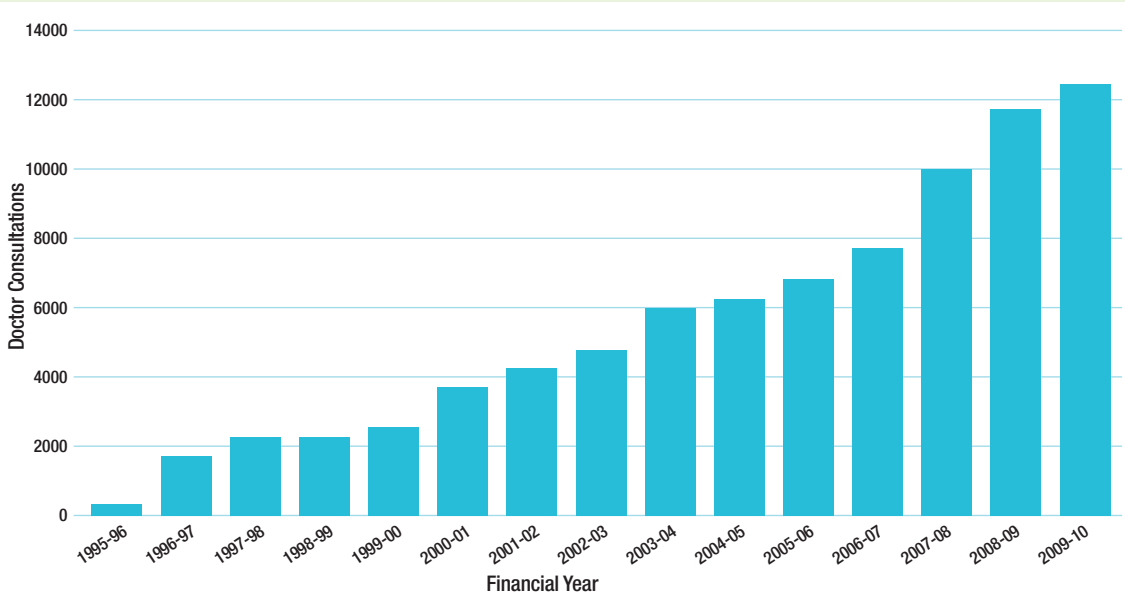

Figure 4.2 Improved access to Inala Indigenous Health Service — Doctor consultations 1995–2010

monitor the impact of the National Strategic Framework for Aboriginal and Torres Strait Islander Health and to inform policy analyses, planning and program implementation. Much of the primary care data reported in this framework is derived from three quality improvement programs, the OATSIH Healthy for Life program,[15] the action research project Audit for Best Practice in Chronic Disease (ABCD),[16] and the Australian Primary Care Collaboratives program (APCC).[17] Additional

General Practice data is derived from the Bettering the Evaluation and Care of Health (BEACH) program[18] and Divisions of General Practice reports.[19] The main objective of these quality improvement programs is to involve staff in developing and implementing action plans from the audit and analysis of local data. Tharawal Aboriginal Corporation joined the APCC program in 2009 and has already seen encouraging improvements in the care it delivers (see Case Study 3).

Case study 2: Healthy Hearts Cardiac Rehabilitation at Wuchopperen Health Service

Wuchopperen Health Service is an ACCHS, established and managed by Aboriginal and Torres Strait Islander people to provide primary healthcare services to the Aboriginal and Torres Strait Islander communities of Cairns and the surrounding environs

In recent years, a key focus of Wuchopperen has been to improve access to secondary prevention services for people with established coronary artery disease. For all people who have had a cardiac event, the National Heart Foundation recommends a three-phase cardiac rehabilitation program with hospital inpatient sessions, outpatient group programs and maintenance of secondary prevention in the community.[10-11] However, only about half of eligible patients are referred to outpatient cardiac rehabilitation (OCR) by hospitals in Queensland.[12]

In consultation with ACCHSs and mainstream services, a guideline was developed by the National Health and Medical Research Council (NHMRC) to improve access to best practice care.[12] Some key points needed for success include involving more Aboriginal health workers in care, involving family members in decision-making, and ensuring community involvement in health promotion.

Wuchopperen Health Service has successfully implemented these recommendations through the creation of an outpatient program known as the Healthy Hearts OCR program. This program operates in partnership with a public hospital cardiac rehabilitation unit to improve access for Aboriginal and Torres Strait Islander communities. Healthy Hearts offers Phases Two and Three cardiac rehabilitation. This includes health education, supervised exercise sessions, counselling and maintenance strategies. The key difference when

compared with conventional programs is that Healthy Hearts is flexibly delivered by a community-controlled health service as an integral part of a comprehensive suite of primary healthcare services and programs. Since its inception there have been substantial improvements in attendance.

In 2005, prior to the program's implementation, only five Aboriginal and/or Torres Strait Islander people had attended Cairns Base Hospital for cardiac rehabilitation. In the first year of operation of Healthy Hearts there was a tenfold increase in attendance, with over 50 people receiving rehabilitation services at Wuchopperen. Internal audits of service activity have shown that these markedly improved attendance rates have since been sustained. Anecdotal evidence suggests that four key factors have driven the program's success:

- establishing a flexible and evidence-based program in a culturally safe setting
- developing a respectful working partnership with the Cairns Base Hospital
- providing transport assistance and ongoing follow-up and support, including home visits
- integrating the program with the primary care services provided at Wuchopperen.

Healthy Hearts demonstrates that community-driven solutions combined with cross-sector collaborations can have a positive impact for many people who are missing out on evidence-based services. In July 2008, the Australian Health Minister acknowledged Healthy Hearts as a successful example of a community-based health service initiative that provides consumer centred care.[13]

Robust research conducted in partnership with primary care services is an important means of obtaining reliable data to inform the delivery of better quality care. In the area of prevention and management of vascular, renal and metabolic diseases, three cross-sectional surveys have recently been conducted in both ACCHSs and mainstream General Practice to better understand the gaps between best practice recommendations and actual care provided. These studies include:

- KVC audit of 1,165 records in eight partner health services[22]
- BEACH survey of care practices for 2,618 adults who routinely attend General Practice[23]

Case Study 3: Tharawal Aboriginal Corporation and quality improvement programs

Tharawal Aboriginal Corporation, an ACCHS based in the Campbelltown area of south-west Sydney, was established in 1984. Based on 2006 census figures, this region has one of the largest Aboriginal populations in New South Wales, and the Campbelltown area is one of the most socio-economically deprived in Sydney.[20-21] By focusing on the needs of the community, Tharawal has substantially increased its quality of care over the past five years. The service became accredited under the standards of the Royal Australian College of General Practitioners (RACGP) in 2006, and in 2008 won the RACGP National General Practice of the Year. During 2009–10, Tharawal commenced involvement in the Australian Primary Care Collaboratives program with the support of the Aboriginal Health and Medical Research Council of New South Wales.

This program works through regular collection and reporting of clinical data, and through health services sharing ideas, adapting them to their local situation and implementing positive, incremental strategies. Through participation in this program, Tharawal has rapidly implemented more systematic recording of data. There are encouraging signs that high quality clinical care is being provided, when compared with national averages for services participating in this program (Figure 4.3). The majority of the participating services are private General Practices.

Photo courtesy of Tharawal Aboriginal Corporation

CHD = Coronary Heart Disease   BP = Blood Pressure   HBA1c = Glycated haemoglobin   ■ Tharawal Aboriginal Corporation   ■ National Average
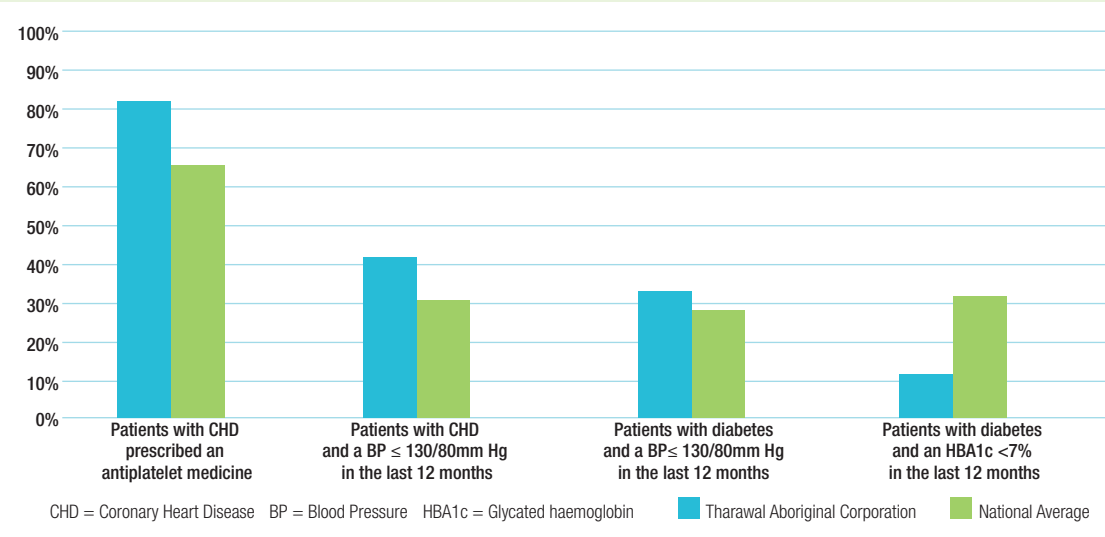
Figure 4.3 Performance measures on selected indicators for Tharawal Aboriginal Corporation compared to national averages for services participating in the Australian Primary Care Collaboratives program 2009–2010

*Data sources: Tharawal Aboriginal Corporation and the Australian Primary Care Collaboratives[17]

- AusHeart — the Australian Hypertension and Absolute Risk Study of 5,293 patients who routinely attend to General Practice.[24]

All three studies identified substantial gaps in both the identification and management of risk factors for vascular, renal and metabolic conditions, suggesting the existence of system-wide inefficiencies. Importantly, however, for people identified at high-risk of a heart attack or stroke, Kanyini partner health services performed better than mainstream General Practices in the prescribing of guideline-indicated medicines (Figure 4.4). Further research is planned to explore which components at the system level are associated with improved care practices. Of particular interest is the extent to which features such as health service governance, staffing mix, systems of quality improvement and availability of specialist outreach services can influence processes of care and health outcomes.

KVC is involved in a promising intervention exploring the use of an Electronic Decision Support System to address management gaps such as those described above. This system provides point-of-care support for health professionals to improve the identification of people at elevated risk of heart attack and stroke and to promote evidence-based prescribing of medicines that are known to reduce those risks. It has been successfully piloted and evaluated for use in several ACCHSs and is now fully integrated with two of the most commonly used primary care software systems in Australia.[25] A large-scale roll-out and implementation strategy is planned to commence in 2011.

Is the care organised for safety?

There is little quantitative data on patient safety for Aboriginal and Torres Strait Islander peoples. There has, however, been extensive qualitative work exploring factors that promote or hinder safe care. KVC collaborators have been involved in two large-scale research projects that have shed important light on these issues.

The Improving Access to Kidney Transplants (IMPAKT) study focused on the experiences of Aboriginal and Torres Strait Islander people in accessing and negotiating predominantly hospital-based services for their severe chronic kidney disease.[26] IMPAKT spoke with over 300 patients, care providers and policy makers across Australia. In many areas, poor communication was evident between hospital and primary care providers leading to a lack of coordination of care. The need for more Aboriginal and Torres Strait Islander staff, particularly in senior decision-making roles, was emphasised. Patients felt poorly informed regarding their health, and expressed confusion and frustration regarding their ability to engage and communicate regarding their concerns.[27] Fundamentally important themes included difficulty in attracting and retaining skilled staff in remote areas, as well as the lack of resources and capacity to move beyond simply providing essential treatments to fully engaging with patients to discuss treatment options and make informed decisions regarding their health and wellbeing. Examples of good practice included the Broome Satellite Dialysis Unit, where the local ACCHS partnered with hospital renal services to provide patient centred, high-quality care.

CVD = Cardiovascular Disease
BP = Blood Pressure

■ High risk without established CVD (5 yr risk ≥ 15%) (% prescribed at least one BP medicine and a statin)

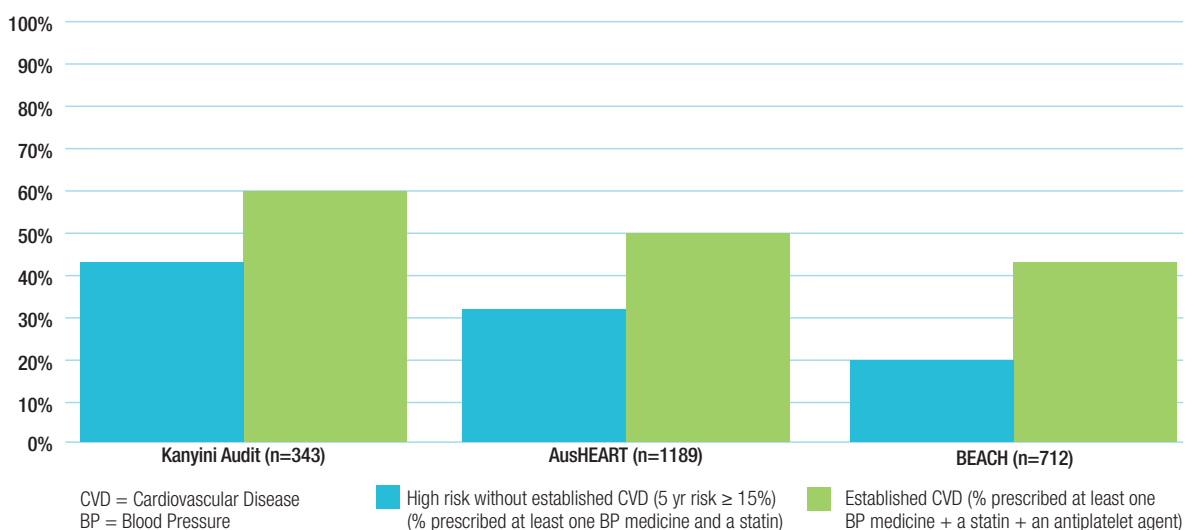■ Established CVD (% prescribed at least one BP medicine + a statin + an antiplatelet agent)

Figure 4.4 Prescribing rates of guideline-indicated medicines for people at high-risk of cardiovascular diseases — A comparison of three studies[22-24]

The Kanyini Qualitative study has similarly recently completed over 200 interviews with patients and care providers in ACCHSs, hospitals and community health services to review how to provide better systems of care. The study explored the underlying reasons for barriers and enablers to care for Aboriginal and Torres Strait Islander people with (or at risk of) chronic disease. The study aimed to:

- document people's experiences and expressed health needs
- understand how people make decisions to access health services
- determine how the people themselves define 'care'
- determine how a consumer centred service across the continuum of care would look and operate.

Although detailed analyses are underway, emerging stories have highlighted the importance that communities place in trusting relationships with health services, and the critical nature of choice and flexibility in the delivery of care. From a health service perspective, quality chronic disease care was seen as relying on system-based approaches, guided by good governance and health service leadership in chronic care. Patients talked of the significant complexity inherent in the current system for people with chronic diseases, and the associated costs incurred by individuals and families when seeking support. They also talked about the significant and often painful impact of being 'labelled' as having a chronic disease and the way this influenced engagement with services. Most striking was the community focus on wellness rather than sickness. This indicated a poor fit between health system models of care based on sickness and a community focus on embracing, preserving and reclaiming wellness. These insights will be important to developing alternative approaches to chronic disease care for Aboriginal and Torres Strait Islander people.

Both studies have identified two key barriers in the management of chronic disease — poor continuity of care between tertiary services and primary health care, and the lack of culturally safe services. Cultural safety is an often neglected aspect of patient safety. It provides a useful approach to examining the power imbalance between patients and care providers, and outlines the processes needed to realign health services to overcome these imbalances.[28-30] Cultural safety moves away from the simple notion of 'awareness' to embrace broader theories underpinning patient safety (protection from danger and development of strategies to prevent error). The meaningful incorporation of culturally safe practices into healthcare institutions is a challenge, and generally such initiatives are poorly evaluated. Robust research and interventions in this area could play a vital role in the provision of safer care for people regardless of their culture. Neglect of this can have devastating consequences, as documented by the recent case of

an Aboriginal man's death, alone on an airstrip, after treatment in a tertiary centre.[31]

Future directions

This chapter uses the Australian Safety and Quality Framework for Health Care as a lens to view a snapshot of activity in the Aboriginal and Torres Strait Islander primary healthcare sector. The case studies demonstrate how several health services are successfully addressing barriers to the provision of safe and high quality primary health care for their patients. However, substantial challenges do remain. Entrenched disparities such as lower access to hospital procedures,[32] lower access to Medicare and Pharmaceutical Benefits Scheme services,[33] and a thirteen times greater rate of premature discharge from hospital against medical advice[14] are potent reminders of the variation in healthcare quality experienced by Aboriginal and Torres Strait Islander peoples.

The 2008 Council of Australian Governments National Partnership Agreement on 'Closing the Gap' in Indigenous health outcomes provides an unprecedented opportunity to address these systemic inequities.[34] With a particular focus on tackling chronic diseases and their risk factors in the primary care sector, several measures are currently being implemented. Their success requires improvements across the continuum of care that are based on respectful partnerships with Aboriginal and Torres Strait Islander communities. Sustainable and culturally safe bridges need to be built between the ACCHS and mainstream primary healthcare sectors. Improved linkages with the secondary specialist care and tertiary hospital care, both in remote and urban areas, are also critically important. Community-initiated and based research can play an important role in better informing policy on successful strategies to improve healthcare safety and quality.

Over the coming years, KVC will seek to work closely with partner health services to implement well-informed, safe and innovative systems solutions that better meet the healthcare needs of Aboriginal and Torres Strait Islander peoples. One example of such work is the Kanyini Guidelines Adherence with the Polypill (Kanyini-GAP) study. This is a randomised controlled trial of a polypill-based strategy for people at high-risk of heart attack or stroke.[35] A *polypill* is a single pill containing low-dose aspirin, a statin (a class of cholesterol lowering agent) and two blood pressure lowering medicines. The trial seeks to assess whether this strategy improves adherence to indicated therapies and clinical outcomes among high-risk patients in both ACCHSs and mainstream General Practices when compared with taking usual cardiovascular medications separately. The trial commenced in 2010 and aims to recruit 1,000 people. Results are expected in early 2013.

A number of diverse strategies to provide health care that is consumer centred, information driven and safe are discussed in this chapter. An essential ingredient is that these strategies are delivered in partnership with primary care services. A combination of locally generated initiatives and large-scale, systems-oriented interventions are needed. Through the provision of accessible, safe and high-quality care, we can make a substantial impact in closing the gaps in health outcomes.

Acknowledgements

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5

Recognising and responding to clinical deterioration

Ensuring that patients whose condition deteriorates in hospital receive appropriate and timely care is a key safety and quality challenge. To address this challenge at a national level the Australian Commission on Safety and Quality in Health Care (the Commission) started a program of work in this area in late 2008. Since then there has been considerable work carried out to improve recognition and response systems by the Commission nationally, by the state and territory health departments at a jurisdictional level, and by individual hospitals and clinicians.

In *Windows into Safety and Quality in Health Care 2009*, the Commission examined the issue of recognising and responding to clinical deterioration. That report provided an overview of key concepts and processes. This year the Commission reports on the progress of some of these initiatives, and identifies some important emerging issues regarding the recognition of, and response to, patients whose condition is deteriorating.

A national approach to recognising and responding to clinical deterioration

The evidence base regarding the best systems and practices for recognising and responding to clinical deterioration is still developing. Much of the development of recognition and response systems has come from 'bottom-up' processes, and a range of different systems have evolved to meet the specific needs of individual hospitals and their patients.[1] There is a growing body of research on this topic, but we do not yet have one 'best practice' approach.[2] It may be that there will never be a single 'best' way of recognising and responding to clinical deterioration — different settings and different types of facilities may need to use processes and systems that are appropriate for their resources and their patient populations.

In this context, the Commission developed the *National Consensus Statement: Essential Elements for Recognising and Responding to Clinical Deterioration.*[2] The Consensus Statement was developed from expert experience and published evidence and was refined through a public consultation process. The Consensus Statement describes the elements that are essential for prompt and reliable recognition of, and response to, clinical deterioration. Evidence and expert opinion suggest that if the practices and systems included in the Consensus Statement were operating effectively in all hospitals, then death and harm associated with a failure to recognise and respond to clinical deterioration would be reduced. The elements in the Consensus Statement are:

- Measurement and documentation of observations
- Escalation of care
- Rapid response systems
- Clinical communication
- Organisational supports
- Education
- Evaluation, audit and feedback
- Technological systems and solutions.

National Consensus Statement: Essential Elements for Recognising and Responding to Clinical Deterioration

In April 2010, Health Ministers endorsed the Consensus Statement as the national approach for recognising and responding to clinical deterioration in acute care facilities in Australia. This endorsement helps ensure that there is a consistent national framework to support clinical, organisational and strategic efforts to improve recognition and response systems. The Consensus Statement aligns with existing work within the states and territories such as *Between the Flags* in NSW[3] and *Compass* in the ACT,[4] and can be used to develop and review hospital-based and other programs that aim to improve the recognition of, and response to, clinical deterioration.

Australia is one of the few countries that has taken a national approach to the recognition of, and response to, clinical deterioration. This national approach ensures that issues regarding recognising and responding to clinical deterioration remain on the national safety and quality agenda, and also facilitates sharing of information and solutions.

The Commission is currently developing an implementation guide to support use of the Consensus Statement. The guide will provide information and resources to support hospitals to put in place the systems described in the Consensus Statement. The guide will be available in early 2011.

Improving the design and use of observation charts

There are many activities underway in Australia to support the implementation and effective functioning of the elements in the Consensus Statement in hospitals. These activities are being driven by a range of organisations, including state and territory health departments, local public and private hospitals, universities and commercial providers. For the Commission, one of the key areas of work to date in supporting use of the Consensus Statement has concerned observation charts.

Observation charts are a key tool for supporting timely and accurate recognition of deterioration. Studies have identified that documentation of observations in hospitals is frequently incomplete.[5-6] Even when observations are recorded, the meaning of observed abnormalities may not be understood, and these abnormalities may not be acted on.[7-8] The Commission has focussed on improving

the recognition of clinical deterioration by improving the design and use of observation charts.

Human factors research on observation charts

In 2009, the Commission reported on a project conducted by the School of Psychology at the University of Queensland and funded by the Commission and the Patient Safety and Quality Improvement Service of Queensland Health. This project examined the performance of a range of existing observation charts in terms of recording and detecting deterioration in vital signs. The project also developed a new chart based on good human factors and design principles. This chart is called the Adult Deterioration Detection System or ADDS chart.

This research found that the design of charts had a significant impact on the ability of participants to accurately and quickly identify whether vital signs were abnormal. Detailed reports about the methodology and

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Box 5.1 A human factors approach to observation chart design can improve detection of clinical deterioration

In 2009–10 researchers from the School of Psychology at the University of Queensland conducted an innovative research project funded by the Commission and Queensland Health. The project aimed to compare a range of existing observation charts to identify which charts performed best for ease and accuracy of recording vital signs and likelihood of detecting deterioration in those vital signs. It also sought to create and evaluate a new chart that takes into account the best features of existing charts.

There were five phases to this project:

1. Heuristic analysis: a review of the quality and design problems in a sample of 25 existing observation charts from Australia and New Zealand. Over 1,000 usability and design problems were identified in these charts.

2. Survey: an online survey of 333 health professionals regarding their use of charts, general preferences about the design of charts, and specific questions about nine charts.

3. Development of the ADDS chart: development of the new Adult Deterioration Detection System chart based on combining what were

considered to be the best design features of existing charts. This chart was included in the simulation experiments.

4. Simulation experiment 1 — Detecting abnormal observations: comparison of six charts under controlled conditions to measure the errors made by chart users in identifying whether a set of observations contained an abnormal value. Error rates and response times were measured. Generally the charts that were considered to be better designed (from a human factors perspective) were associated with lower error rates and faster response times. The ADDS chart performed better than the other charts.

5. Simulation experiment 2 — Recording patient data: comparison of performance of six charts for recording observations over an extended period of time. Fewer recording errors were made when observations were recorded on charts that were considered to be poorer design (from a human factors perspective), presumably as those charts are less complex. However, overall the error rate for this experiment was much lower than the previous simulation experiment (2% compared to 30%).

results of this project are available on the Commission's website,[9-12] and a summary is provided in Box 5.1.

Future national work on observation charts

The research conducted by the University of Queensland provides a platform for the next phases of the Commission's work on observation charts. In extending this work the focus is on *observation and response charts* (ORCs).

An ORC is a system for recording patient observations and specifying actions to be taken in response to deterioration in the clinical state of the patient. It includes:

- essential design characteristics identified from human factors research

- a graph for recording physiological observations over time

- the capacity to record information about key physiological parameters as specified in the Consensus Statement (respiratory rate, oxygen saturation, heart rate, blood pressure, temperature, and level of consciousness)

- thresholds for each physiological parameter or combination of parameters that indicate abnormality

- the physiological abnormalities and other factors that are required to escalate care

- actions required when thresholds are reached or deterioration is identified clinically.

Track and trigger systems are formal systems that rely on routine periodic measurement of observations (tracking), with a predetermined action (trigger) when a threshold is reached.[13] There are a large number and wide variety of track and trigger systems in place with differences in the parameters including cut-off points to trigger responses, and weighting of measures in scoring systems.[13] There is not yet any definitive evidence about what is the best track and trigger system to use overall.[13] Because of the complexity of this field, the Commission has not made a recommendation that a specific type of track and trigger system should be used in Australia.

Four ORCs have been developed that incorporate different types of track and trigger systems. These charts use systems that have been identified as effective from a human factors perspective, as well as the systems that are commonly being used in Australia.[9] These ORCs include:

- a combination track and trigger system with both an aggregate weighted scoring system and a single parameter system (the ADDS chart)

- a single parameter system with four possible responses when deterioration is identified

- a single parameter system with two possible responses when deterioration is identified

- a single parameter system with only one possible response when deterioration is identified.

The ORCs are currently being tested and piloted in clinical settings. Usability testing is being conducted to examine whether the ORCs are effective clinical tools for managing patients. In 2011, the ORCs will be piloted in a range of hospitals. It is planned to conduct further simulation experiments of these charts in 2011–12. The Commission will also continue to explore the viability and wisdom of recommending the use of a single type of track and trigger system and a single observation chart for Australia.

Other programs to improve recognition and response systems

The issue of recognising and responding to clinical deterioration has become a prominent safety and quality issue in Australia over the last few years. In addition to the Commission's national program, there are programs and activities that have been put in place by state and territory health departments, as well as by individual public and private hospitals. To give a flavour of this work, and the outcomes that can be achieved, Boxes 5.2–5.4 describe three of these activities. These have been included to give a sense of the variety of approaches that are possible — they present a very small selection of the work that is underway in Australia.

Emerging issues

As was noted earlier, work to improve the recognition of, and response to, patients whose condition deteriorates in hospital is evolving: evidence is emerging about effective ways to do this, and questions continue to arise about why failures to recognise and respond appropriately still occur. With better understanding of how recognition and response systems operate in practice, new issues emerge that need to be addressed to optimise these systems and patient care processes. More information is also emerging about the patient factors, disease factors and system factors that contribute to deterioration. This section describes some of these issues.

Clinical judgement and decision making

Track and trigger systems are designed to provide an objective framework to support the recognition of patients whose condition is deteriorating.[14] While such systems are important, it is also important to provide clinicians on the ward with the scope to call for assistance if they are worried about the patient, irrespective of whether the patient's vital signs meet any other physiological criterion. One recent Australian study found that of 3,194 MET (medical emergency team) calls across six hospitals over 12 months, almost 30% were triggered because clinicians were worried about a patient; this was the single most common reason for calling the MET.[15]

These figures suggest that to maximise the effectiveness of recognition and response systems, it is important to support clinicians in developing their clinical judgement and decision-making. This may improve their ability to assess their patients and to understand and interpret what they find. Most of the clinicians who call for emergency assistance are nurses, and there is a growing body of work on this issue within the nursing profession.

To recognise clinical deterioration early, nurses need to be aware of the 'cues' or indicators that signal that a patient is deteriorating. There are a wide range of possible cues that can provide information about the status

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Box 5.2 Between the Flags

The *Between the Flags* Program was developed by the NSW Clinical Excellence Commission (CEC) and is designed to improve recognition of, and response to, deteriorating patients in NSW public hospitals. The Program is being implemented state-wide and has involved a partnership between the CEC, the NSW Department of Health, clinicians and administrators.

The value of the Program was recognised by Commissioner Peter Garling in his final report of the Special Commission into Acute Care Services in NSW Public Hospitals and his recommendation to implement has provided an important impetus for change.

The Program was officially launched by the NSW Minister for Health at Liverpool Hospital in January 2010.

Coming from a sound evidence base, the Program has five elements which are designed to make it effective and sustainable. These are:

1. *Governance structures* to oversee implementation in all of the state's acute hospitals and a NSW Health policy underpinning the key elements of the Program.

2. *Standard observation charts* used for early recognition of the deteriorating patient (clinical observation and track and trigger system).

3. *Clinical Emergency Response Systems* incorporating documented clinical review and rapid response procedures in all acute facilities.

4. *Education* aimed at enhancing skills for the recognition and management of the deteriorating patient, provided through the DETECT (Detecting

deterioration, Evaluation, Treatment, Escalation and Communication in Teams) Education Package.

5. *Evaluation*, including key performance indicators to be collected, collated, and used to inform the users of the system and those managing the implementation and continuation of the strategies.

The Standard Adult General Observation (SAGO) Chart is now in use across all NSW Health Services and charts have also been developed for paediatrics (five charts) and at-risk maternity patients. An emergency department chart is also being developed.

The NSW Health *Recognition and Management of a Patient who is Clinically Deteriorating Policy Directive* was issued in May 2010. The Policy Directive included mandatory actions for Attending Medical Officers (AMOs) and other staff to regularly review a patient's medical management plan and for the AMO to be informed should their patient's condition deteriorate or require a rapid response.

To support implementation, each health service has established dedicated committees to ensure progress. Comprehensive Clinical Emergency Response Systems are now in place and increased clinical reviews are being undertaken. As of August 2010, over 45,000 front-line clinicians have been provided with awareness training and more than 19,000 have completed the online DETECT e-learning. Face-to-face practical training sessions are also being rolled out across NSW Health.

Further information is available at: http://www.cec.health.nsw.gov.au/programs/between-the-flags.html

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and stability of the patient. These can include available patient information (such as handover reports, patient history, charts, results of investigations and assessments already undertaken), current clinical assessment data and understanding of the broader clinical situation.[16]

Of particular interest are any cues that might exist prior to the formal criteria included in early warning scores or other track and trigger systems. In a recent Australian study, nurses who had called the MET based on the worried criterion were interviewed.[17] Ten cues that caused concern about the potential for clinical deterioration were identified. These included noisy breathing, inability to talk in sentences, increasing supplemental oxygen requirements to maintain oxygen saturation, agitation, impaired mentation, impaired cutaneous perfusion, unexpected trajectory of condition, new or increasing pain, new symptom and new observations. Research in this area continues, together with efforts to support development of clinical reasoning skills during undergraduate and postgraduate nursing education.[16]

Box 5.3   Early Recognition, Rapid Response, Good Outcome (ERRRGO): Implementing a project on a shoestring budget

Sharyn Phillis and Cathie West. Noarlunga Hospital

All too often, it seems, improvements are postponed because of budget constraints and inertia. However, sometimes all it takes is the will to find a way…

With minimal funding, two nurses at Noarlunga Hospital in Adelaide successfully implemented a program on recognising and responding to deteriorating patients. They did it by involving volunteers, clinicians, information and communications technology (ICT) and clerical staff in a collaborative effort to improve patient care.

Noarlunga Hospital is a 108 bed community health service located approximately 30 km south of Adelaide's CBD. The hospital has an extensive emergency department dealing with some 50,000 presentations per year. However, the hospital has no high dependency or intensive care facilities, so patients needing critical care are transferred to Flinders Medical Centre, a major hospital approximately 18 km away.

Limited medical cover out-of-hours, increasingly complex admissions and off-site critical care services created an urgent need for the early identification of clinically deteriorating patients.

After hearing about ACT Health's COMPASS program at a conference in 2008, the nurses were convinced that a similar program should be implemented at Noarlunga Hospital. Auditing of patient notes indicated that observations were poorly documented and medical reviews delayed, and staff were not responding quickly to abnormal vital signs.

The nurses submitted a business proposal to implement a deteriorating patient program at Noarlunga Hospital. The hospital executive were enthusiastic, but only $3,000 funding was available.

It was decided to proceed with a pilot program on a single ward, using what resources the hospital could offer. Fortunately, educational material from the Compass Program (ACT Health) was publicly accessible via the internet.

Staff in-service time was utilised and flyers were distributed throughout the hospital. Volunteers were asked to photocopy and collate educational folders while the COMPASS training CD was duplicated and distributed. Consultants facilitated the creation of flow charts for medical review.

To design an observation chart with embedded early warning scores, the nurses searched the internet and cut-and-pasted six charts they found into a new tool, and clerical staff used Microsoft Excel to create a master copy. The charts were then photocopied for distribution.

The program was trialled for three months from December 2009. The dedication of the two nurses motivating the program and their innovative methods, attracted interest from hospital leaders and staff; transforming a good idea into enduring change at Noarlunga Hospital. The project was introduced in a smaller way than initially envisaged; however, doctors and nurses embraced the change that had been enabled through mutual effort.

On 5 July 2010, the system was introduced to all inpatient wards at Noarlunga Hospital.

End of life care

One of the issues that is important when responding to patients whose condition is deteriorating in hospital is whether the patient is deteriorating from causes that are reversible or irreversible. The patient's prior expressed wishes about care at the end of life also need to be considered when responding to deterioration and implementing potentially aggressive medical treatment plans. There is increasing evidence that the MET has become one of the major mechanisms for end of life care

planning for patients in hospital in Australia. One study found that in 23% of 713 MET calls over a 12-month period a not-for-resuscitation (NFR) order would have been appropriate, and in 4% of these cases the MET documented this order as part of the call.[18] One study of 900 patients found 29% of all MET calls were associated with an NFR order.[19] Two other studies reported that approximately 10% of MET calls resulted in a newly documented limitation of medical therapy.[20-21]

Box 5.4   Implementation of rapid response in a regional private hospital

Gary Russell, Trevor Aicken, Mark Nally.
St John of God Hospital Bendigo

In 2005, St John of God Hospital Bendigo identified the need for a system to respond to the needs of deteriorating patients following an analysis of adverse events. In the private hospital setting, the particular need was not rapid escalation of consultation, as the most senior member of the team is typically the first medical point of contact. Rather, rapid assessment and time-critical communication were seen as potential deficiencies, given that medical staff were often off-site, and on some occasions could not be immediately contacted.

A nurse-led rapid response system was introduced to address these needs. This model was chosen to allow early and thorough assessment by critical care trained nursing staff. Calls were based on physiological criteria or nursing concern. The rapid response 'team' always included the patient's visiting medical officer (VMO), usually contacted by phone, but the protocol encouraged emergency involvement of other relevant medical staff if the primary VMO was not immediately available.

In 2010, an evaluation to review the operation of the rapid response system was undertaken. The system was reviewed by examining:

- the number of cardiac/respiratory arrests, comparing data from 2005–07 with 2009–10
- mortality review — looking for evidence of a failure to recognise and/or respond to a deteriorating patient.

The evaluation identified that the number of cardiac/respiratory arrests declined between the two periods for which data were available (2.5 events per 10,000 overnight bed days in 2005–07 compared to 1.6 events in 2009–10). This decline occurred despite an increase in patient acuity over that period.

Mortality review was conducted on 30 patients in the six months to 30 June 2010. This showed evidence of a failure to recognise or respond in seven cases (23%). Problem analysis of these cases identified continuing potential barriers to escalation of care, including the following:

- Complexity of assessing patient needs and wishes in the face of advanced illness. In some cases, the deterioration was part of the dying process, though this had not been stated at the time.
- Sensitivities in respecting the VMO-patient relationship in the private setting. Routine rapid response calls may include some that the VMO may consider inappropriate, thus not enhancing care or the doctor's relationship with the patient. Nursing staff attempt to evaluate these preferences (often not explicit) in considering whether to activate the rapid response system.
- Impact on workflow and care for other patients.

The experience of St John of God Hospital Bendigo demonstrates that it is possible to have a successful rapid response system in a private hospital in a regional area. The primacy of the VMO-patient relationship in this setting needs special consideration — it facilitates escalation to the most senior attending medical officer, but also poses a potential barrier to initiating a rapid response team.

Thus information coming from studies of METs and end of life care suggest that the processes and systems that are in place are not working as effectively as they might. It appears that METs are having a significant role in decisions about end of life care. There are a number of reasons why this is problematic. The MET does not know the patient, and may be making decisions about end of life care in crisis situations, without appropriate input from the patient, family or sometimes the team that usually provides care to the patient. When end of life care processes are not working effectively at a ward level, there is also a risk that patients may receive interventions that they do not want and that are not warranted, and/or that they may not receive more appropriate services, such as palliative care.[22] End of life care needs to be considered as an essential component of recognition and response systems to optimise the care provided to patients who are dying.

There is considerable work underway in Australia to improve the care of patients who are dying in hospitals. Advance care planning programs are in place in most states and territories, and hospitals have processes in place regarding advance care plans, NFR orders and similar treatment-limiting decisions.[23] Ideally these processes and discussions should be undertaken with the patient and their family in advance, when the patient is most competent and their views and wishes can be explored.

Sustainability of rapid response systems

The sustainability of rapid response systems is also being examined. Anecdotal information from some hospitals that have had these systems in place for some time indicates that there has been a continual, gradual, increase in the number of calls to the MET. This has resource implications for the part of the hospital in which the MET is located, which is usually the intensive care unit. Some information will be provided about this in 2011 from a study sponsored by the Commission and conducted by the Australian and New Zealand Intensive Care Society Centre for Outcome and Resource Evaluation (ANZICS-CORE). This 40-hospital study will investigate the variability of MET call rates, and the impact of this on patient outcomes.

Evidence from an Australian point prevalence study reported by the Commission in *Windows into Safety and Quality in Health Care 2009* indicated that one in 20 patients across 10 hospitals had abnormal observations to an extent that was sufficient to trigger

a MET call in a 24-hour period. Further analysis from this study indicates that in most of these cases the METs were not called. Some of the hospitals participating in the study indicated that if a MET was called for all of these patients, they would not have had the staff required to provide an adequate response.

This study highlights the tensions associated with improving processes to recognise patients whose condition is deteriorating, which may in turn lead to an unsustainable increase in calls to rapid response systems such as METs. It emphasises the importance of identifying deterioration at an early stage — preferably when the patient can be stabilised by staff on the ward, so that the rapid response system does not need to be triggered, and a MET does not need to be called.

Identification of patients at risk of deterioration

Patients who require a call to a MET have a greater risk of dying in hospital compared to patients who do not require a MET call. A recent Australian study found that 17% of patients without an NFR order who receive one MET call die in hospital, and 34% of patients who receive more than one MET call die in hospital.[24] This compares with an overall in-hospital mortality rate of approximately 4% and an in-hospital mortality rate for patients admitted to intensive care of approximately 12%. These results align with other published studies that have identified a higher mortality rate for patients with vital sign abnormalities that fulfil MET criteria.[25-26]

Systems such as METs were introduced to prevent the occurrence of adverse events, such as cardiac arrests, and admissions to intensive care. The findings described above indicate patients who receive a MET call are as sick — and possibly sicker — than those admitted to intensive care. This is a further reason to suggest that there would also be value in attempting to identify patients who may be at risk of deterioration, so that they can be monitored or managed before their condition deteriorates to such an extent that a MET call is needed.

Research is currently underway to examine whether it is possible to identify patients even 'further upstream' — that is, those who may be likely to deteriorate and need to be stabilised using interventions such as the MET. Approaches to managing this issue include the use of screening tools, and the introduction of proactive surveillance teams to identify and manage high-risk patients.

Application of principles regarding recognising and responding to clinical deterioration to other settings

Many of the initiatives and issues discussed in this chapter apply to general medical and surgical patients in acute care settings. However the principles described in the Consensus Statement regarding the need to recognise deterioration early and respond appropriately can also be applied more broadly. One area where the Commission is examining the application of these principles is in mental health settings.

There are two particular applications of these principles in mental health. The first concerns the physiological deterioration of patients with mental health conditions. The scope of the Consensus Statement is physiological deterioration for all patients across all areas of an acute care facility, including mental health and psychiatric areas or wards. However, there is evidence that in some cases physiological deterioration of patients in these areas may not be identified or managed appropriately, leading to adverse events, including death.[27] While the elements in the Consensus Statement need to be reviewed and tailored for mental health, basic steps such as the need to measure and document observations and having a process for escalating care if deterioration occurs apply to patients in these settings. Some jurisdictions and hospitals are now considering how they would apply the Consensus Statement to the physiological care of mental health patients.

The Commission is also discussing with stakeholders within the mental health sector how the principles in the Consensus Statement could be applied to the psychiatric deterioration of mental health patients. Psychiatric deterioration that is not identified and managed appropriately can be associated with adverse events or outcomes such as the use of seclusion and restraint, self-harm, and suicide. There is already a considerable body of work in areas such as suicide prevention and seclusion and restraint.[28-29] Feedback from within the mental health sector has suggested that there may be value in applying the principles and framework developed by the Commission and expressed in the Consensus Statement to these adverse outcomes. The stakeholders, outcomes, clinical processes and potential interventions relating to psychiatric deterioration are very different to the focus on physiological deterioration that is in the Consensus Statement. Specific work with experts in this field will be needed to examine how the principles associated with recognising and responding to clinical deterioration and

the Consensus Statement could be applied to psychiatric deterioration.

Future directions

The Commission is continuing to work in this area, and sees it as part of the longer term work of the organisation. The Commission will continue to support the effective operation and implementation of the elements in the Consensus Statement, and provide a national focus and leadership for work in Australia in this area. One way in which this is occurring is through the development of a National Safety and Quality Health Service Standard for Recognising and Responding to Clinical Deterioration (see Chapter 7). This is based on the National Consensus Statement and is part of the Commission's broader accreditation reform program. In 2010, the Commission is also undertaking a national survey of the systems that hospitals have in place for recognising and responding to clinical deterioration. The results of this survey will provide information about the current status of these systems, and will help the Commission target its work to address to needs of hospitals in recognising and responding to clinical deterioration.

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6

Changing practice through improving clinical handover

In 2007, the Australian Commission on Safety and Quality in Health Care (the Commission) established the National Clinical Handover Initiative to develop and trial practical and transferable tools for improving handover communication. The real risks to patient safety that can arise from poor handover, as well as the scarcity of existing evidence, motivated the Commission to work on developing evidence-based tools to address these risks.[1]

Clinical handover is defined as 'the transfer of professional responsibility and accountability for some or all aspects of care for a patient, or group of patients, to another person or professional group on a temporary or permanent basis'.[2]

This definition, from the National Patient Safety Agency in the UK, was adopted by the Australian Medical Association in their *Safe Handover: Safe Patients* guideline and has been central to the Commission's clinical handover work.[3] The definition acts as a continuous reminder to clinicians that handover involves *giving* and *taking over* accountability and responsibility for their patients' care.

Risks to patient safety from poor handover

Poor or absent handover can have extremely serious consequences for patients. It can delay the provision of a diagnosis or treatment, it can result in tests being missed or duplicated, or it can lead to the wrong treatment or medication being administered. For patients, this means enduring distress from uncoordinated care at best, and preventable harm at worst.

The scale of this problem is not small. Communication problems are a major contributing factor in 70% of hospital sentinel events (a small group of particular and potentially very serious events — see Chapter 10), with an increasing risk of adverse and sentinel events occurring each time a patient is transferred between units, physicians and teams.[4] Millions of handovers occur annually in the Australian healthcare system, including when clinicians change shifts, when patients are transferred between wards or health services or during the process of admission, referral and discharge.[1]

However, results from the 2009 Quality Systems Assessment Survey undertaken in NSW showed that despite the problems that can arise from inadequate handover, 14% of medical teams reported that no time was spent on shift handover, and a further 18% reported that less than 10 minutes is spent on each shift handover.[5]

Scarcity of existing evidence

In 2008, the University of Tasmania's eHealth Services Research Group conducted a structured evidence-based literature review on the effectiveness of improvement interventions in clinical handover.[6] The review concluded that handover is a high risk scenario for patient safety. It also concluded that 'despite the proliferation of published literature on clinical handover in the last three to five years, the numbers of high quality evidence-based interventions that display a high level of potential for transferability remain relatively low.'[6]

Creating tools based on workplace research

The National Clinical Handover Initiative began with the establishment of a pilot program. Fourteen public and private sector organisations were engaged to develop and pilot practical and transferable tools for improving clinical handover. The tools were developed based on workplace research and involved 53 hospitals in six states and territories across Australia, as well as several primary and aged care services. Summaries of each of the pilot projects developed through the National Clinical Handover Initiative are provided throughout this chapter.

A range of tools for improving clinical handover were developed, including:

- protocols for improving medical and nursing shift-to-shift handover
- successful techniques for implementing structured communication (discussed in more detail later in this chapter)
- tools to assist clinicians to craft their own intervention
- tools for inter-facility transfers
- online education tools
- materials on team communication.

Figure 6.1. Pilot project locations

These evidenced-based resources are all freely available for download and use from the Commission's website at: http://www.safetyandquality.gov.au

Standardising clinical handover

There is increasing evidence that standardised processes for clinical handover may improve the flow of critical information between healthcare professionals. They can also improve the accuracy and appropriateness of information exchanged.[7-8] This helps ensure patient safety and the continuity of care for patients. Healthcare staff conducting their daily work also benefit, as there are fewer details that need to be checked later. Clinicians

participating in the pilot program even reported that good handover helped to reduce stress at work.[4]

The need for flexible standardisation

Not all activities in health care lend themselves to rigid rules and protocols.[9] However, some processes of care, like handover, can benefit from a certain degree of standardisation, but need to be flexible enough to work across health's various settings.[10] The concept of 'flexible standardisation' allows for appropriate variation in practice while using a set of standardised processes.[11]

For example, the actual content of a handover would be different in obstetrics, intensive care and rehabilitation wards. This is because their care functions, staffing numbers and the kinds of health professionals involved in providing the care are all very different. The size (number of beds), location (rural, regional and metropolitan) and patient populations of hospitals also all heavily influence the necessary content of a handover.

Box 6.1   The PACT Program — Communication Training and Team Training to Support Handover

Albury-Wodonga Private Hospital — Ramsay Health Care

This project used the PACT mnemonic — Patient Assessment, Assertive Communication, Continuum of Care for Patient Safety, and Team Work with Trust — to facilitate improved communication and increase patient safety through the development, implementation and evaluation of formalised tools and education processes for clinical handover.

Baseline surveys were conducted with both doctors and nurses to identify key issues in clinical handover. The SBAR principles were then used to develop two communication tools. A *handover prompt card* provides a template for standardising shift-to-shift and person-to-person handover. It guides the speaker in a sequence thereby establishing a routine that also enables the receiver to note if information is omitted. The second, a *reporting template*, is a standard template for nurses contacting Visiting Medical Officers (VMOs) to report deterioration in a patient's condition. The format assists nurses to structure their communication in a logical sequence, facilitating rapid comprehension from VMOs. The clinicians felt that these handover tools vastly improved their confidence level when communicating.

Box 6.2   ISBAR revisited: Identifying and Solving BARriers to Effective Handover in Inter-hospital Transfer

Hunter New England Area Health Service

This project assessed the role of a standardised format 'ISBAR' — 'Introduction, Situation, Background, Assessment and Recommendation' — across one sending and two receiving hospitals for inter-hospital transfers.

The assessment included surveys and interviews with clinicians, patients, carers and staff from the Patient Flow Unit and those involved in transporting patients.

Many participants reported that the best elements of the ISBAR framework were that it was simple, memorable and portable. Staff had increased confidence in giving and receiving clinical handover and audits of medical charts indicated that the quality of information improved. A comparative incident analysis between the sending facility and a similar hospital suggested a heightened awareness surrounding clinical handover.

Overall, ISBAR was well-received and continues to be used and spread across the region.

In order for patients, clinicians and the health system to benefit from the introduction of a standardised process for handover practices, the practice itself has to work effectively in the real-world of healthcare delivery. Equally as critical, is ensuring that the application of structures and standardisation does not supersede the need for the application of clinical judgement. In the real world of care delivery, clinicians use their judgement continuously in order to determine the priorities at handover.

No amount of standardisation eliminates the need for clinicians to decide which patients will be handed over in detail, what details about a patient's care need to be handed over, or how the process may need to be altered at a moment's notice to respond to an emerging situation. The use of standardised processes for clinical handover however, provides a strong framework which helps ensure that information is not missed in this individual decision making.

A principles-based approach: the OSSIE Guide

In 2010, the Commission released the *OSSIE Guide to Clinical Handover Improvement* (the OSSIE Guide)[10], which is based on learnings from the National Clinical Handover Initiative Pilot Program.

The OSSIE Guide aims to provide a handover improvement team with the information required to successfully *introduce and sustain improvement to clinical handovers at shift change*. The OSSIE Guide assists with the implementation of a standardised process for handover that is customised to suit the local context (flexible standardisation).[11]

Box 6.3   Inter-professional Communication and Team Climate in Complex Clinical Handover Situations (in the Post Anaesthesia Care Unit): Issues for Safety in the Private Sector

Deakin University in collaboration with Epworth, Cabrini and Alfred Hospitals

The focus of this quality improvement project was an in-depth evaluation of inter-professional communication and team work during clinical handover in Post Anaesthesia Care Units (PACU).

This project led to the development of valid and practical tools and measures of safety and quality in clinical handover specific to the PACU in the private sector. These tools appear to be transferable across the public healthcare sector.

Handover improvement solutions included process improvement tools, standardised structure and content tools (ISOBAR and minimum data checklist) and tools for ongoing quality monitoring and evaluation to ensure clinical handover practices are both robust and resilient in the workplace.

Box 6.4   SHAREing Maternity Care: Clinical Handover between Visiting Medical Officers and Midwives

Mater Health Services Brisbane Limited

The SHARED (Situation, History, Assessment, Risk, Expectation and Documentation) framework was piloted within two private hospitals. It sought to address the communication issues associated with the critical time around referral from the midwife to the VMO when a change in the woman's condition is diagnosed and referral from the VMO to the recovery nurse/midwife post-Caesarean section. The project included pre and post-implementation measures using clinician surveys, chart audits, clinical incident data and patient satisfaction data.

The project found that using SHARED to define the minimum dataset can improve the accuracy and appropriateness of information exchanged for clinical handover.

'OSSIE' stands for:

- **O**rganisational leadership
- **S**imple solution development
- **S**takeholder engagement
- **I**mplementation
- **E**valuation and maintenance.

The core of the OSSIE Guide was developed based on workplace research conducted for the Commission as part of the National Clinical Handover Initiative and, in particular, seminal work by Royal Hobart Hospital and the University of Tasmania.

As described above, the mechanics of handover vary according to the clinical discipline, the setting and the personnel involved. Consequently, the OSSIE Guide uses a principles-based approach to handover improvement that is suited to the local context, rather than prescribing a single method to improve handover. The OSSIE Guide's principles are widely applicable and can be adapted or integrated into existing change management and quality improvement frameworks.

Any intervention developed to improve handover needs to fit into the local setting to be successfully implemented. The best way to achieve this is to thoroughly study current practices and gain a baseline understanding of any current process and exactly what needs to be improved. The OSSIE Guide provides guidance on conducting observations and interviews and includes a series of questions that, once answered, will provide the team of clinicians involved in the improvement project with a solid understanding of what is in place and what needs to be improved.

Box 6.5   The Use of Reflective Video to Improve Handover

University of Technology Sydney, Faculties of Humanities and Social Sciences, Nursing, Midwifery and Health and Adult Education; University of Melbourne School of Nursing

HELiCS — an acronym for 'Handover: Enabling Learning in Communication (for) Safety' — is an approach to staff learning that focuses on involving front-line clinicians in reflecting on practice using video footage of their handovers.

The HELiCS kit includes:

1) a 20-minute training DVD with examples of actual footage from the participating clinical sites and visual examples of how handover practice improvements occurred in these sites

2) a resource booklet that explains the video-based improvement procedure and details the achievements at three case study sites

3) a HELiCS website with additional resources, information about the reflexive redesign method, and an interactive forum where clinicians can go to discuss progress, solutions and problems.

The HELiCS study gave staff greater insight into previously unrecognised clinical and operational problems, enhanced coordination and efficiency of care, and strengthened junior-senior communication and teaching.

Box 6.6   Implementing written and verbal handover to ensure optimal transfer of patients from country to metropolitan health services

Western Australia Country Health Service and Royal Perth Hospital

Western Australia Country Health Service (WACHS), in partnership with Royal Perth Hospital (RPH), undertook a project to identify the risk factors involved in acute patient transfers and to trial strategies that would assist in addressing these risk factors.

A minimum dataset form was created (iSoBAR) for use in verbal and written handover processes.

iSoBAR, has been adapted from SBAR, where 'i' stands for identify and 'o' stands for observation.

An educational toolkit based on the mnemonic iSoBAR to aid training on standardising clinical handover was developed. Trials were held across seven rural regions. WACHS encountered an environment both ready for an opportunity to streamline process and improve communication.

Successful handover improvement requires the extensive inclusion of staff in the design of the improved handover process. Otherwise, clinicians may be disengaged from the process and a change to practice is less likely to be successful. The OSSIE Guide also provides guidance on the kinds of activities which might encourage engagement, as well as guidance on who should be consulted as they will be affected by the change. Above all, clinicians need to be afforded the opportunity to converse critically about how handover affects their patient care activities and make crucial links between handover processes and patient safety.

The OSSIE Guide also incorporates the sound and practical feedback received from healthcare professionals on an earlier consultation edition, released in March 2009.[12] The finalised edition was endorsed by Australian Health Ministers in April 2010 as a national guide to improving clinical handover practices at shift change in a hospital setting.[12]

Successful techniques for implementing structured communication

One evidenced-based method for structuring handover communication is through the use of briefing techniques. These techniques, which often take the form of a mnemonic, consist of a set of broad prompts and help clinicians to organise the information they need to communicate about their patients at handover. The prompts, which accompany each letter of the mnemonic, can be tailored to the relevant health setting. Some examples of mnemonics that were successfully trialled as part of the National Clinical Handover Initiative Pilot Program are:

- **SHARED** – **S**ituation, **H**istory, **A**ssessment, **R**isk, **E**xpectation, **D**ocumentation
- **SBAR** – **S**ituation, **B**ackground, **A**ssessment, **R**equest / **R**ecommendation

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Box 6.7   SafeTECH — Safe tools for electronic clinical handover

South Australian Department of Health, University of South Australia and University of Tasmania

Research carried out at three South Australian hospitals provided the basis for the development of *A Guide for the Safe Use of Electronic Clinical Handover Tools*. The guide is designed to assist all stages of the design and use of electronic handover systems. The research was oriented around the implementation of an electronic tool to support different forms of clinical handover in each of the hospitals. It provides guidance to clinicians, medical administrators, quality and safety staff and health informatics professionals.

Overall, the project found that change management was particularly critical when implementing electronic systems to assist clinical handover. It is critical that the approach to implementation emphasises that the electronic tool should support, and not replace, processes for handover.

Box 6.8   TeamSTEPPS®

South Australian Department of Health Clinical Systems Unit and South Australian Health Services

The TeamSTEPPS® project used an evidence-based teamwork training system developed by the US Department of Defense Patient Safety Program in collaboration with the Agency for Healthcare Research and Quality (AHRQ) to evaluate the content and process for validity in the Australian context.

It was trialled in five sites in South Australia using four teamwork competencies — leadership, situation monitoring, mutual support and communication — that characterise effective communication and teamwork. The evaluation shows that the TeamSTEPPS® program is applicable, relevant and adaptable to the Australian healthcare context. The sites embraced the TeamSTEPPS® philosophy of improving teamwork, communication and patient safety through structured communication techniques.

- **ISBAR** – **I**ntroduction, **S**ituation, **B**ackground, **A**ssessment, **R**ecommendation
- **iSoBAR** – **i**dentify, **S**ituation, **o**bservation, **B**ackground, **A**gree to a plan, **R**eadback.

There is sufficient evidence to show that standardising handover content and processes that take into account the local needs of the clinical setting are highly effective at improving handover. However, the National Clinical Handover Initiative did not demonstrate that any mnemonic is better, or more able to ensure patient safety, than another. As a result, the *OSSIE Guide to Clinical Handover Improvement* does not prescribe or recommend use of a particular mnemonic as the best method for handover improvement. Rather, the OSSIE Guide emphasises the importance of choosing and implementing a structured communication process and engaging clinicians to ensure it is suitable to the local context.

Box 6.9   Bedside Handover and Whiteboard Communication

Griffith University Research Centre for Clinical Practice Innovation, Queensland Health Patient Safety Centre and Peel Health Campus, Western Australia

Communication of patient information, both within and between professional groups, is integral to ensuring patient safety and continuity of care. The aims of this project were to describe the structures, processes and outcomes of bedside nursing handover and whiteboard-assisted communication as two strategies to improve the type and accuracy of information communicated among health professionals.

Bedside handovers were seen to improve accuracy and promote patient-centred care.

When successfully implemented, whiteboards were perceived to be useful prompts for referral, improved patient flow and enabling timely and better discharge planning.

Evaluating the impact

Preliminary results from the National Clinical Handover Initiative Pilot Program have already shown a positive impact with some significant practice changes. These findings emphasised the importance of clinical leadership, organisational support and stakeholder relationships in the success and sustainability of handover improvement. Key elements included the following:

- Successful handover required leadership and role clarity.
- Simple briefing techniques were found to be easy to learn, remember and embed into practice.
- Clearly defined policies and standardised processes led to greater staff confidence when communicating handover information.
- Standardised processes improved the accuracy and appropriateness of information exchanged.
- When staff were involved in the redesign process a sustained change in practice was more likely.
- Awareness around the importance of clinical handover increased, where handover improvement programs were implemented.

Box 6.10   Transfer to Hospital Envelope

North East Valley Division of General Practice

Transfer of residents from aged care homes to hospital is a high-risk clinical handover scenario.

This study was a one-year trial evaluating a range of aspects of the Aged Care Home Transfer-to-Hospital Envelope (the envelope). As well as containing documents, the back of the envelope features a checklist of crucial handover information to be included when a resident is transferred.

Evaluation methods included written surveys and semi-structured face-to-face interviews. The envelope was found to be useful, improved clinical handover where implemented and raised awareness of the importance of clinical handover. Consistent positive findings from this project indicate that the envelope approach has the potential for much wider use.

- Where it was measured, there was an increase in patient satisfaction, after handover improvement was implemented.

A comprehensive external evaluation has now been commissioned to examine the impact that the National Clinical Handover Initiative Pilot Program has had on handover improvement in Australia.

clinical handover both nationally and internationally. In June 2009, *Clinical Handover: Critical Communications*, a supplement issue of the *Medical Journal of Australia*, was published, containing a collection of 14 articles on handover improvement.[1] The pilot projects have also generated other publications.[13-14]

Spread of the Pilot Program

The Commission's National Clinical Handover Initiative Pilot Program attracted leading Australian clinical handover researchers, who collectively have made a significant contribution to the existing evidence-base on

Box 6.11   The Development of SOPs and Educational Resources for Shift-to-Shift, Medical and Nursing Handover

Royal Hobart Hospital and University of Tasmania

This project developed transferable standardised operating protocols incorporating minimum data sets for medical and nursing shift-to-shift handover in General Medicine, General Surgery and Emergency Medicine.

The project utilised a holistic socio-technical approach to understand and improve clinical handover. This approach integrated clinical and information systems expertise with qualitative field techniques, as well as user-centred education and training. The model of an iterative feedback loop to support continuous improvement was used to gather information and then continually revise practice.

The project's outputs are structured into four major deliverables:

1) Stakeholder engagement protocol

2) Minimum data sets for clinical handover

3) Standardised Operating Protocols (SOPs)

4) Training materials for implementation of SOPs.

The minimum data sets and standard operating protocols can improve clinical handover as long as they are sufficiently flexible so they can be adapted to suit the local context.

Box 6.12   NSW Health – Safe Clinical Handover

In 2009, NSW Health launched the *NSW Safe Clinical Handover Program*. The program led by the NSW Health Acute Care Taskforce 'distilled the work of many' including the National Clinical Handover Initiative to develop a standard set of key principles that are applicable for all types of handover. The program was developed as a state-wide response to the Special Commission of Inquiry into Acute Care Services.

Early engagement, communication and consultation were important factors to ensuring that the *Safe Clinical Handover Program* and associated key principles for implementation have been held in high regard across NSW. All Area Health Services, the Children's Hospital at Westmead, Justice Health and the Ambulance Service of NSW have developed plans and commenced implementation of the *Safe Clinical Handover Program*.

In September 2009 *Safe Clinical Handover* (PD2009_060) was mandated as a state-wide policy directive for NSW.

NSW Health has also commenced work on two further projects as part of the *Safe Clinical Handover Program*: The Junior Medical Officer (JMO) shift change clinical handover project and the GP/Facility clinical handover project. The JMO project is the key focus of 2010 and the GP/Facility project will be the key focus in 2011. The JMO clinical handover project places a strong focus on leadership and consistency of handover process at every shift change. The project is being tested at six concept sites in late 2010 and will be implemented system-wide from January 2011.

Further information is available at: http://www. archi.net.au/e-library/safety/clinical/nsw-handover

Early indications show that the tools can be translated into a variety of health settings and are being adapted for use outside of the wards, units and hospitals where they were developed. Several states and territories have translated or are in the process of translating various tools into broader system-wide strategies or policies for handover improvement. For example:

- NSW Health launched the *Safe Clinical Handover* (PD2009_060) as a state-wide policy directive for handover improvement in NSW in September 2009 (see Box 6.12).

- Queensland Health released the *Queensland Health Clinical Handover Strategy 2010-2013*. This is being progressively implemented across the state throughout 2010. Key components of the strategy include shift-to-shift handover in hospitals, transfer from high acuity care to low acuity care and inter-hospital transfer.

Box 6.13   Development of e-Learning Strategy for Safe Clinical Handover

University of Queensland Centre for Health Innovation and Solutions, Queensland Health Patient Safety Centre and Med-E-Serv Pty Ltd

The scope of this project was to create an online education program that provides clinical leaders with evidence-based concepts that underpin effective clinical handover to improve patient safety.

The education is designed to prepare and empower clinical leaders to critique existing handover processes within their area of responsibility and to positively influence handover culture in the healthcare workforce.

Leading Clinical Handover is aimed at healthcare professionals with managerial, team leader or advanced clinical responsibilities. This online course can be completed in short 15 minute segments and gives clinicians the tools to improve the clinical handover processes, using evidence-based principles.

Future directions: building on the foundations

The Commission is now building on the foundational handover work. A toolkit is being developed to complement the OSSIE Guide and further assist with handover improvement. The toolkit, called the 'Little OSSIE', will include an education package (comprising a PowerPoint presentation, case studies and video), a one page information sheet on handover for wide distribution, and copies of the tools developed as part of the pilot projects.

The Commission, in collaboration with NSW Health, has recently finalised a *Structured Evidence-Based Literature Review on Discharge, Admission and Referral.* This work will provide the foundational evidence for scoping future work on admission, referral and discharge handover across the acute, community and primary health settings.

Box 6.14   Revolving Doors — Effective Communication in the Handover of Mental Health Patients to Community Health Practitioners

St John of God Health Care — NSW Services

This project developed and implemented a strategy to streamline communication at discharge. Using the quality improvement 'Plan, Do, Study, Act' model, the stakeholder collaborative developed clinical handover documentation, processes, comparative clinical indicators, and revised hospital policy to support the uptake of evidence-based practice for clinical handover, hospital to community provider.

Preliminary clinical audit results suggest that adherence and compliance with the revised process is being achieved. Observed changes imply that the new communication strategy is effective in the promotion of an environment where the risk of adverse events for patients should decrease and organisational management improve.

TeamSTEPPS® is a formal team training program for health care which helps to improve team performance and reduce the likelihood of errors through structured communication. As a practical support following the successful implementation of the TeamSTEPPS® program in South Australia, through the National Clinical Handover Initiative, the Commission is now investigating the feasibility of a national TeamSTEPPS® licence. A national licence would enable any state, territory or national organisation to choose the TeamSTEPPS® program as their approach.

The interest and momentum in handover improvement is growing rapidly throughout the Australian healthcare system; in all jurisdictions, in local health areas, in educational institutions and among front-line clinicians as a direct result of the Commission's work. The Commission will continue to build on its foundational handover work and plan for work to potentially focus on the broader context of clinical communications.

Box 6.15   Improving Residential Aged Care Facility to Hospital Clinical Handover

GPpartners

In this project, GPpartners developed an audit tool focused specifically on information flow in Residential Aged Care Facilities (RACFs) and hospital transfers. This focused on how admission and discharge information is currently received, types of information received and the possible impact on clinical outcomes.

Two audits were performed three months apart, on both admissions and discharges of residents in RACFs. Two methods for improving patient information flow in these transfers were promoted between the first and second audits – the Yellow Envelope (paper-based) and Health Records eXchange (electronic). Results show improvement on some indicators in the second audit, such as an increase of clinical information included in admissions and an increase in discharges received with the resident.

Acknowledgements

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7

Accreditation, change and improved quality of patient care

Health care in Australia is delivered in a variety of settings including hospitals, office-based practices and community settings. At the request of Health Ministers, the Australian Commission on Safety and Quality in Health Care (the Commission) has developed a set of draft National Safety and Quality Health Service Standards (the Standards) to be applied across all settings of care. The Standards are considered essential to improving the safety and quality of care for patients. Accreditation of a health service against the Standards will provide a public marker of safe and good quality care and will support community confidence in the healthcare system.[1]

Cost of safety and quality lapses in health care

Data from several studies indicate that safety and quality incidents in hospitals can occur far more often than anyone would want.[2] Although it can be difficult to determine the costs directly attributed to safety and quality lapses in health care, recent estimates indicate the costs are significant. For example:

- The National Health and Hospitals Reform Commission suggested that 'adverse events result in approximately 4,550 unnecessary deaths a year and add a cost of around $2 billion annually to the health budget'.[3]

- Hospital acquired illness and injury can add between 13% and 16% to hospital costs alone; which equates to at least one dollar in every seven dollars spent on hospital care.[4]

- There are approximately 190,000 hospital admissions due to a problem with a medicine each year with an estimated cost of $660 million.[5]

- If nothing is done to prevent falls, the total estimated cost attributable to falls-related injury will increase almost threefold from $498.2 million per year in 2001 to $1,375 million per year in 2051.[6]

- It has been estimated that the ultimate cost of medical indemnity claims grew from $159 million in 2004–05 to $203 million in 2007–08.[7]

- If all antimicrobials were used only as they should be and antimicrobial resistant infections were contained, $300 million would be available to be used more effectively by the health system to provide care.[8]

Patients can also be harmed in primary health settings. This harm may occur because of lapses in the processes of care, knowledge or skills of the practitioner, investigation errors, medication errors or communication errors. Although the evidence base and research methods regarding patient safety in primary health care are still developing, it is clear that there are significant patient safety risks in this field.[9] The patient safety solutions that have been applied in primary health care have generally been adapted from the acute care sector, and to date there has been little evaluation of their effectiveness.

Why is accreditation important?

Accreditation is a system to promote and support safe patient care and continuous quality improvement of health services through a process of regular assessment and

review. It includes an assessment of whether standards have been met by a health service.

Accreditation systems have been implemented in many countries, with 18 national accreditation programs operating in Europe alone. The United Kingdom commenced operation of accreditation programs in 1989 and Finland, Spain, France, the Czech Republic and the Netherlands all initiated national accreditation programs during the 1990s.[10] Australia was an early adopter of accreditation for health care, with a program commencing in the 1970s. The American system commenced operation before the Australian system.

For all these countries, accreditation is one mechanism for reviewing and improving the quality of healthcare services. There are many reasons why health services may to be accredited:

- It provides a focus to help organisations that have responsibility for the management and organisation of health care to identify areas for improvement that are important to safety and quality.

- The process is used to highlight gaps in service provision, revealing where organisations need to invest time and resources.

- It provides a mechanism for the regular review of systems and processes, and can be incorporated into daily activities to provide an ongoing mechanism for safety checks within an organisation.

- It provides economic benefits due to the implementation of better practice.

- It is a requirement to fulfil funding or contractual obligations.

Accreditation is a necessary part of a comprehensive system to support safety and quality improvement at both the health service and national levels (Figure 7.1). By itself accreditation does not ensure the safety and quality of health care provided to patients. However, accreditation is effective as part of an improvement system because it can verify that actions are being taken, that system data and information are being used to inform the analysis of issues and program solutions, and that safety and quality improvement is being achieved.

Although accreditation does not guarantee that patients will not be harmed, two separate reviews of accreditation literature[11-12] found that accreditation is an effective element in promoting change within organisations, through the implementation of quality improvement programs and in supporting professional development.
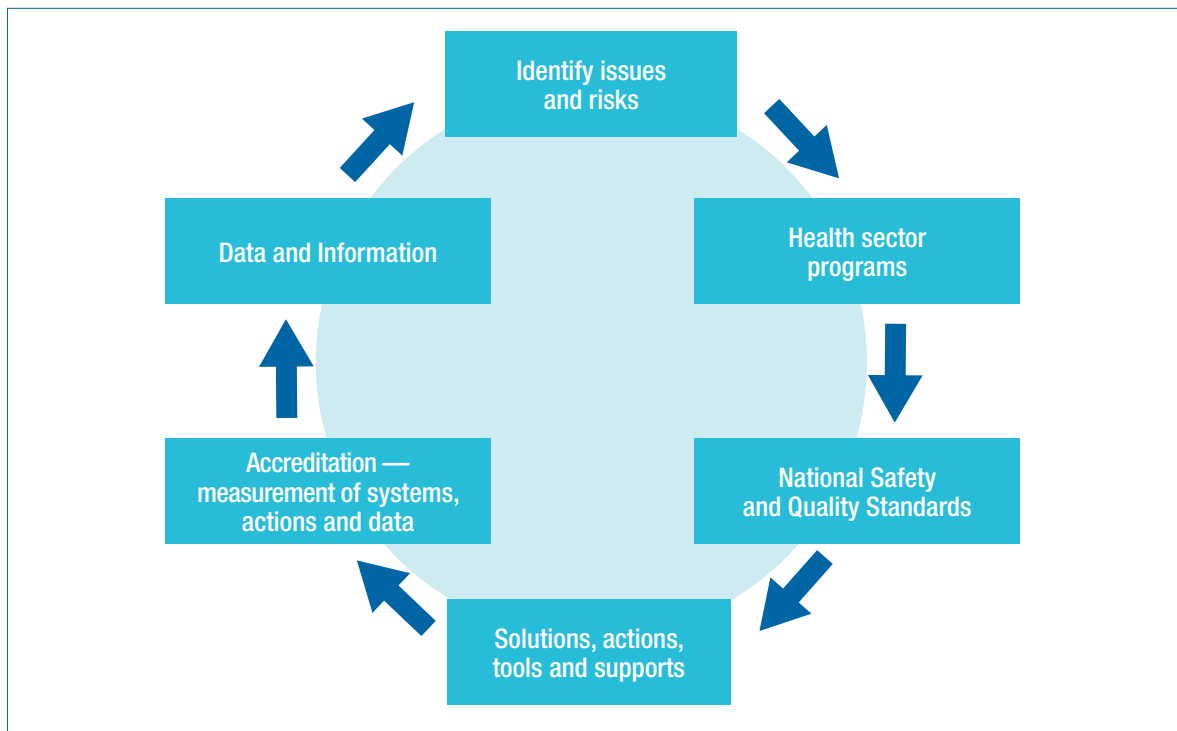
Figure 7.1 Australian Quality Improvement Cycle for Health

National approaches to safety and quality improvements, which include accreditation, have the potential to reduce the cost to the health system of safety and quality lapses.

Why reform?

Accreditation in Australia is a mature process and while the current accreditation programs have assisted in emphasising quality and safety across the health sector, accreditation is fragmented with multiple, often competing or overlapping, accrediting agencies and sets of standards. It is perceived by many organisations as complex and resource intensive.

Consumers may not know how they can find out if the health service they are using is accredited. What information they can access is largely about process, such as the period of accreditation, and is not necessarily the type of information that consumers want about the quality and safety of the health service or the attitude of staff.

There are substantial gains to be made in safety and quality which could in part be facilitated by effective safety and quality accreditation programs. The potential improvements would come as a result of:

- reducing harm to patients
- reducing the cost of care

- improving systems and consumer productivity
- improving consumer trust in the health care system
- improving the consistency of assessment processes and systematic coordination of accreditation.

Some of the problems with accreditation in the current health system include the following:

- It is difficult for consumers to obtain information about the safety and quality standards and accreditation programs being used because of the large number of organisations that provide accreditation services and the different standards they use.
- Many of the standards used by accrediting agencies are not available without payment of a fee.
- Few accrediting agencies report publicly on the findings of health service accreditation, so it is difficult for patients to know where there may be problems with a health service or where there may be a potential risk related to their care.
- While most hospitals and day procedure services are accredited, there are a large number of health services that are not currently accredited.

It is important that the relationships between the key stakeholders are transparent. Transparency is seen as the cornerstone of the cultural transformation that health services need to undergo to become safe.[13]

Given the complexity and diversity of accreditation, in June 2006 Australian Health Ministers requested the Commission review accreditation in Australia and recommend a revised model of accreditation of public and private health services across Australia and to develop national standards.

Accreditation reforms

The purpose of the accreditation reforms is to improve the effectiveness of accreditation in identifying organisations at increased risk of system failures and poor performance.

In April 2008, the Australian Health Ministers' Conference endorsed in principle a model of accreditation that has two key parts:

- the National Safety and Quality Health Service Standards
- the process for the national coordination of health service accreditation.

The model national scheme for health accreditation is designed to achieve the following:

- a measurable improvement in the safety and quality of care for patients
- a decrease in the complexity and duplication of processes for health service organisations
- a decrease in the cost and effort required from health services and staff involved in accreditation processes
- the measurement of performance over time.

The initial work by the Commission has focused on developing a preliminary set of the Standards and detailed planning for the national coordination of accreditation.

The draft Standards describe the systems and processes that a health service must have in place to identify safety and quality risks. This includes having effective governance systems so people know what should happen in an organisation and who is responsible for doing it. It also means that risks to patients are regularly reviewed and actions are taken to reduce those risks. There must be ongoing monitoring of the systems to see if they are effective. Accreditation can test that these systems are in place and that they are reducing safety and quality risks for patients. Educating the public about accreditation will enable consumers to understand the significance of the accreditation status of a health service.

Implementing any reform requires negotiations and consultation with all of those involved. This reform will be no different, with accrediting bodies, health departments as the regulators, health services and consumers all part of those discussions. In implementing the reforms, the Commission will be looking to use the vast skills and experience of all these people to improve the effectiveness and efficiency of accreditation.

National Safety and Quality Health Service Standards

Over four years the Commission consulted widely and worked extensively with technical experts, health service organisations, accrediting agencies and consumers to develop and pilot the draft Standards. This has involved:

- consultation on the content of the Standards
- drafting of the Standards in conjunction with technical experts and key stakeholders
- initial testing and validation of the Standards by Commission committees and working groups
- a call for public submissions, focus group meetings with consumers, meetings with industry groups and accrediting agencies
- piloting the Standards in health services.

The Standards will provide a nationally consistent and uniform set of measures of safety and quality across health services and focus on areas that are essential to improving the safety and quality of care for patients.

The Standards were selected because they address areas where:

- the impact is on a large number of patients
- there is a known gap between the current situation and best practice outcomes
- improvement strategies exist that are evidence-based and achievable.

The Standards provide an explicit statement of the expected level of safety and quality of care to be provided to patients by health service organisations, while providing a means of assessing performance.

The 10 Standards are:

1. *Governance for Safety and Quality in Health Service Organisations* which provides the framework for safety and quality by outlining the expected governance structures and processes of a safe organisation. It requires clear governance processes, routine risk management systems, monitoring of services and quality improvement programs — together these elements constitute safer systems.

2. *Partnering for Consumer Engagement* which facilitates
a consumer centred health system by including
consumers in the review, design and implementation
of quality health care.

3. *Healthcare Associated Infection* which describes the
standard expected to prevent infection of patients
within the healthcare system and to effectively
manage infections when they occur, so as to minimise
their consequences.

4. *Medication Safety* which describes the standard
expected to ensure that clinicians prescribe, dispense
and administer appropriate and safe medication to
informed patients.

5. *Patient Identification and Procedure Matching* which
specifies the expected processes for identification of
patients and correctly matching their identity with the
correct treatment.

6. *Clinical Handover* which describes the requirement
for effective clinical communication whenever
accountability and responsibility for a patient's care
is transferred.

7. *Blood and Blood Product Safety* which specifies the
expected standard to ensure that the patients who
receive blood and blood products are safe.

8. *Prevention and Management of Pressure Ulcers*
which specifies the expected standard to prevent
patients developing pressure ulcers and best practice
management when pressure ulcers do occur.

9. *Recognising and Responding to Clinical Deterioration
in Acute Health Care* which describes the systems
required by health services to ensure that they
recognise when a patient's clinical condition
deteriorates and that they then respond appropriately.

10. *Preventing Falls and Harm from Falls* which describes
the standards for reducing the incidence of patient
falls and minimising harm from falls.

The first two Standards are considered to set the
overarching requirements to effectively implement the
remaining eight Standards which address specific clinical
areas of patient care.

High-risk services are those that undertake 'invasive'
procedures into a body cavity or dissecting skin while
using anaesthesia or sedation. It is intended that all
health services that undertake these procedures should
be accredited against the Standards. Health service
organisations with a lower risk of patient harm should
utilise the Standards as part of their internal quality
assurance mechanisms.

Once endorsed by Health Ministers, the Standards will become a useful tool for organisations such as State and Territory health complaints commissions, professional and regulatory bodies, and educational bodies to use as a measure of the expected level of knowledge and safety and quality performance for health service organisations.

Roles and responsibilities in the model national accreditation scheme

The model national accreditation scheme consists of five, separate but related, roles and responsibilities for participants to support the application of the Standards (Figure 7.2).

The roles of each are broadly as follows:

1. *Health Ministers* endorse the Standards and receive information on the system's performance against standards.

2. *Regulators* including States, Territories and the Commonwealth will adopt the Standards, and require the participation by health services in accreditation processes undertaken by an approved accrediting agency to assess whether they meet the Standards. They will receive relevant accreditation data as a performance measure. Where the Standards are not met, the Regulators could commence a series of escalating actions to ensure standards are met by health services.

Industry and Professional Organisations will adopt the Standards and support participation by health services in accreditation processes undertaken by an approved accrediting agency to meet the Standards.

3. The *Health Service* will meet the Standards and should certify that their meeting the Standards is ongoing and across the entire organisation.

Health services must engage an approved accrediting agency to assess whether they meet the Standards. The contractual agreement between the accrediting agency and individual health services will recognise that accreditation data will be provided to the Regulator and the national coordination program of the Commission.

For health services that participate voluntarily in a self-regulated program, the mechanisms for action or support would be determined by the industry organisation with the advice and assistance of the Commission.

4. *Approved Accrediting Agencies* will assess health service organisations against the Standards — and any other agency standards desired by health services in their accreditation surveys — and provide relevant and appropriate information on performance

against the Standards to those organisations, the Regulators and the national coordination program of the Commission.

An approved accrediting agency reviews the systems and structures to test if they are comprehensive, robust and being monitored, looking in detail at areas of risk or performance concern. The report to regulators will include the available evidence of a health service meeting the Standards.

5. A program of *national coordination* by the *Commission* will:

   • Develop and maintain the Standards.

   • Advise Health Ministers (from time to time) on the scope of accreditation, i.e. which health services are to be accredited. The initial focus is on high-risk services.

   • Approve accrediting agencies to assess health services against the Standards.

   • Liaise with Regulators on opportunities to improve the Standards and the accreditation system.

   • Report to Health Ministers on the application and effectiveness of the Standards and safety and quality improvements of the system.

Future directions

The model national accreditation scheme was endorsed by Health Ministers in November 2010. The key tasks to be completed are to:

• Finalise the National Safety and Quality Health Service Standards, and develop associated implementation guides, fact sheets and training materials that have been tailored to meet the needs of different types of health services and consumers.

• Develop training materials for health service organisations to support their implementation of the Standards.

• Develop a transition plan for the implementation of the Standards and coordination of the model national accreditation scheme for all participants in accreditation.

• Commence planning to evaluate the model accreditation scheme.

• Develop feedback mechanisms.

Health Ministers

Regulators

Includes States, Territories and Commonwealth

• Mandate the Standards and participation in the accreditation scheme

• Oversee accreditation program content

• Receive relevant accreditation data

• Be responsible for an escalating response where the Standards are not met

A program of national coordination in ACSQHC

• Develop and maintain standards

• Advise Australian Health Ministers' Conference on the scope of health service accreditation

• Approve Accrediting Agencies

• Receive relevant accreditation data

• Liaise with regulators

• Report to Health Ministers

Reports on assessment outcome

Health Service Organisations

• Select an approved accrediting agency

• Meet the Standards

Assess and Report

Approved Accrediting Agencies

• Maintain JASANZ or ISQua accreditation

• Provide data on the Standards

• Cooperate on methodology / assessment development
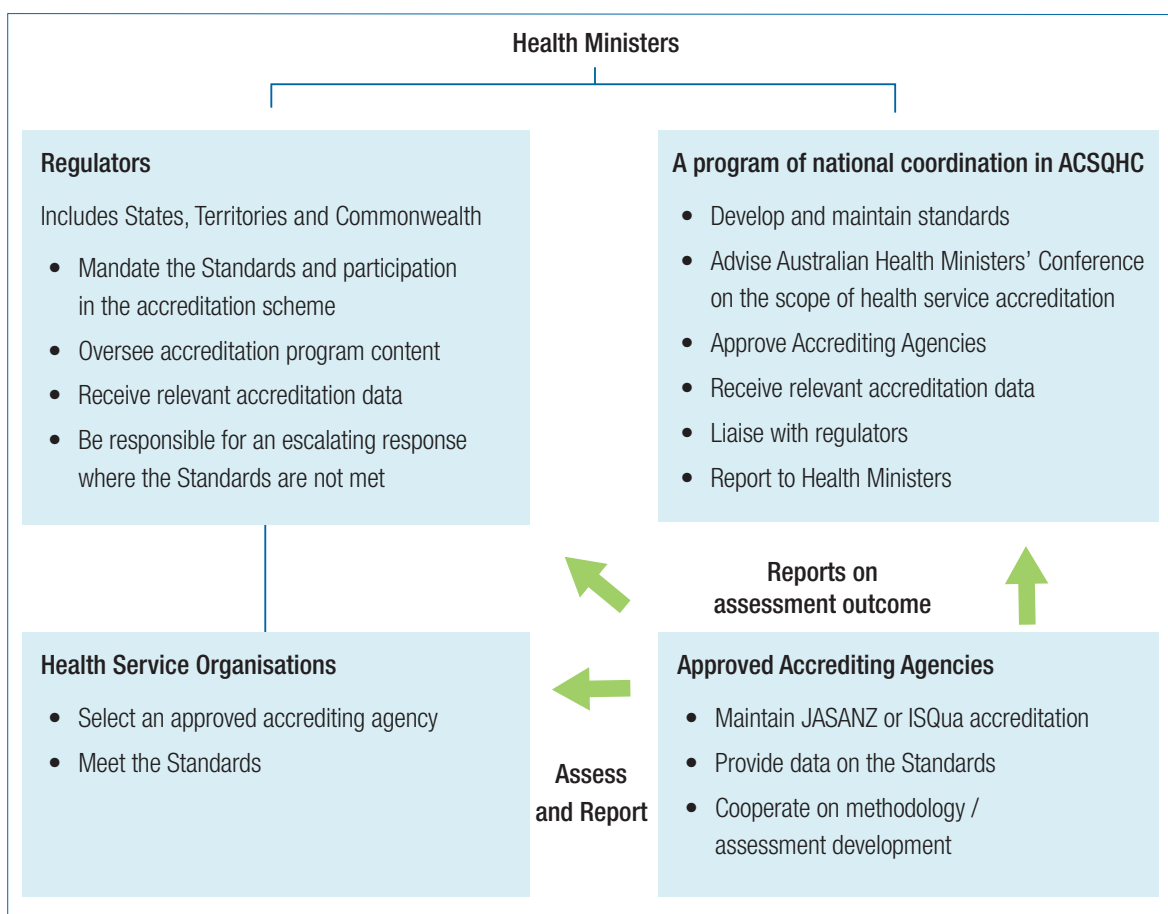
Figure 7.2 Roles and responsibilities

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8

Preventing falls in older people

Falls-related injury is one of the leading causes of injury and death in older Australians.[1] For older people (65 years and older), more than 80% of injury-related hospital admissions are due to falls and falls-related injuries.[1]

Falls are a significant cause of harm to older people across Australia, and are responsible for unnecessary hospitalisation, increased cost and premature death. Preventing falls in older people, and reducing the harm they experience from falls, is a national safety and quality priority. The Australian Commission on Safety and Quality in Health Care (the Commission) developed *Preventing Falls and Harm from Falls in Older People: Best Practice Guidelines for Australian Hospitals, Residential Aged Care Facilities and Community Care 2009* (the Guidelines) to provide a nationally consistent and evidence-based approach to falls prevention. The Guidelines are designed to help health professionals mitigate the risk of falling for older Australian receiving care in hospitals, residential care and the community.

Falls — why so important?

The definition of a *fall* used in the Guidelines is 'an event which results in a person coming to rest inadvertently on the ground or floor or other lower level'.[2] In keeping with the established Prevention of Falls Network Europe definition, a fall is regarded as causing injury if it encompasses peripheral fractures, defined as any fracture of the limb girdles and/or of the limbs.[3]

Rates of falls vary across settings. Studies undertaken in community settings have found fall rates in older people at home of 30–40% per year.[4-7] The rate of falls in aged care facility residents depends on their other health problems and will vary between 4 to 10 falls per 1,000 resident bed days.[9] Older people admitted to hospital have a fall during their admission at a rate of 4 to 12 times per 1,000 bed days.[10]

The degree of harm from falls also varies. Of the third of older Australians living at home who fall each year, 22–60% will be injured. Between 10% and 15% of older people who fall will suffer serious injuries; 2–6% will suffer fractures and 0.2–1.5% will suffer hip fractures.[11] Injurious falls increase in institutional care settings with aged care facility residents experiencing nearly five times the rate of their community-dwelling peers.[12] Nearly half of admitted older patients in hospital wards and departments such as rehabilitation or other sub-acute areas experience one or more falls during an admission.[13] The intensity of falls is also greater in institutional care. Most residential aged care falls result in hospitalisation[12] and 30% of hospital falls result in injuries or death.[14]

The effect of falls on the health system can be severe, with four in five injury-related hospitalisations of older people due to falls and fall-related injuries.[1] The hips and thighs are the most commonly injured areas requiring hospitalisation in both men and women sustaining falls.[12] Hip fractures are one of the most common reasons for hospital admissions (with 24,627 admitted with either a primary or secondary hip fracture diagnosis in 2002–03[15]), and 91% of hip fractures are the result of falls.[1] Femur fractures and head injuries are also common results of falls by older people.[12]

From an individual perspective, hip fractures can have a devastating effect on older people, their carers and the community. For example, 3.6% of falls-related hospital admissions will result in death.[16] Recovery for those that survive can be slow and older people are more vulnerable to post-operative complications. A study of 120 older people pre- and post-hip fracture showed significant reductions in mobility and independence six months after their injury, with independent dressing declining from 86% to 49% of those studied, walking independently from 75% to 15%, and climbing a flight of stairs from 63% to 8%.[17] These figures represent a significant personal and community burden.

Another consequence of falling can be the 'long lie'. Remaining on the floor for an hour or more after a fall correlates with a number of markers associated with high mortality rates, including weakness, illness and social isolation. It has been found that half of older people who spend an hour or more on the floor after a fall die within six months, including those who sustained no direct fall injuries.[18]

The cost of falls is significant and, in combination with demographic changes, particularly the ageing of the population, may rise significantly without additional prevention interventions. Research across the major care settings has shown that costs attributable to falls-related injury will almost treble from $498.2 million in 2001 to an estimated $1,375 million in 2051. This increase will also mean the use of an additional 886,000 bed days per year or the equivalent of 2,500 additional hospital beds. This is the equivalent of having to build four or five major hospitals just to treat these injured people. It will also mean the need for an additional 3,320 residential aged care facility places.[19] All of these factors provide the context and motivation for the Commission's work in the reduction and prevention of falls injury.

Guidelines development

In December 2007, the Commission agreed to a request from the Inter Jurisdictional Committee to develop new national guidelines for the prevention of falls and harm from falls in older people. Earlier national guidelines, which had been completed in 2004, addressed both hospital and residential aged care settings. While the earlier guidelines had been well received, users sought the Commission's agreement to develop new guidelines to ensure a nationally consistent, evidence-based approach to falls prevention across the care continuum, including community settings. Views on the existing guidelines, and possible improvements, were sought through a public call for submissions, national focus groups, an online user survey and targeted interviews with key stakeholders.

The Commission established a multidisciplinary expert advisory group of specialists in falls prevention research, measurement and monitoring, quality improvement, change management and policy. Specialist skills represented included geriatric medicine, allied health and nursing.

The Commission sought to bring the Guidelines closer to the National Health and Medical Research Council (NHMRC) clinical practice guideline standard. The development methods were based on expert consensus generation and targeted evidence reviews graded according to the NHMRC evidence levels.[20] It is expected that subsequent reviews of the Guidelines will involve a more detailed systematic search of the evidence base in accordance with NHMRC requirements.

The project benefited from two recent Cochrane reviews, one looking at falls prevention interventions in hospitals and nursing care facilities, the other at falls prevention interventions in the community. Cochrane reviews are systematic reviews of all relevant randomised controlled trials and provide Level 1 evidence. The new Guidelines draw heavily on the Cochrane reviews for intervention recommendations.

A systematic review of published economic evaluations was undertaken to identify the costs or economic benefits of falls prevention interventions. Providing evidence for cost effectiveness, where available, was an innovation and critical for health services wanting to apply the Guidelines in their practices.

Falls fact sheet for allied health professionals

The new Guidelines

The new Guidelines consist of three separate documents, each addressing a separate care setting; hospital, residential aged and community. It was agreed that the structure of the previous guidelines would be retained. The Expert Advisory Group developed a model chapter as a standard to which subsequent chapters would be written. Each chapter was reviewed by the Expert Advisory Group and by an external expert in an iterative process with the authors. Review of the entire Guidelines were undertaken by both national experts and international experts with significant changes from both review processes incorporated into the final documents.

The new Guidelines, *Preventing Falls and Harm from Falls in Older People: Best Practice Guidelines for Australian Hospitals, Residential Aged Care Facilities and Community Care 2009*, were endorsed by Australian Health Ministers on 13 November 2009.

There are a number of key messages within the new Guidelines that are consistent across all three settings:

- Many falls can be prevented.
- Falls and injury prevention need to be addressed at both the point of individual care and from a wider, team-based perspective.

- Mitigating falls risk factors (e.g. delirium or balance problems) will have wider benefits beyond merely falls prevention.

- Engaging older people is an integral part of preventing falls and minimising harm from falls.

- Best practice in falls and injury prevention includes implementing standard falls prevention strategies, identifying falls risk and implementing targeted individualised strategies that are resourced adequately, monitored and reviewed regularly.

- The consequences of falls resulting in minor or no injury are often neglected. Factors such as fear of falling and reduced activity level can profoundly affect function and quality of life, and increase the risk of seriously harmful falls.

- At a strategic level, there will be a time lag between investment in a falls prevention program and improvements in outcome measures.

Each Guideline document has the same basic structure:

- Part A — an introduction provides background information, a discussion of falls and falls injuries in Australia and recommends consumer involvement in falls prevention

- Part B — standard falls prevention strategies; falls prevention interventions, and falls risk screening and assessment

- Part C — management strategies for common falls risk factors

- Part D — information on minimising injuries from falls

- Part E — post-fall management information is provided in the context of responding to falls.

For ease of reference, Parts C and D consider each falls risk factor and assessment or intervention in separate chapters. However, interventions are generally most successful when used in combination, although there are some single interventions which have proven successful especially in the community setting.

Each part has multiple chapters. The individual chapters are structured as follows:

- Evidence-based recommendations — for prevention interventions (with evidence levels) and for assessment

- Good practice points — developed for practice where there have not been any studies, but based on clinical experience and expert consensus

- Background and evidence — providing an overview of the risk factor or intervention and a summary of the relevant literature on clinical trials

Preventing Falls and Harm From Falls in Older People
*Best Practice Guidelines for Australian Hospitals 2009*
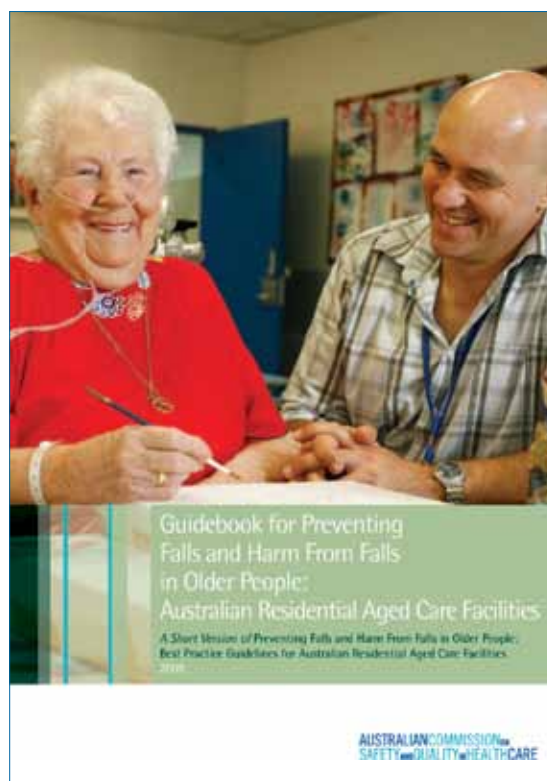
Guidebook for Preventing Falls and Harm From Falls in Older People: Australian Residential Aged Care Facilities

- Principles of care — explaining how to implement the intervention of interest
- Points of interest — elicited through the Guidelines consultations or from 'grey' literature
- Case studies — providing information on likely scenarios as illustrative examples
- Special considerations — providing specific group contexts in which the evidence may be applied
- Economic evaluations — summarising the health economics literature on the prevention intervention or harm minimisation.

Support for implementation

The Commission has also developed support materials to ensure application of the Guidelines to practice. Each Guideline has a smaller version, called a *guidebook*, which contains the essential practice information for front-line health professionals. As smaller documents, the guidebooks are cheaper to produce and easier to handle. *Fact sheets* — targeting consumers, health managers, doctors, nurses, allied health professionals and support staff — contain the key Guideline messages for successful falls prevention. Finally, an *implementation guide* provides a template document for hospitals and residential aged care facilities planning a falls prevention program.
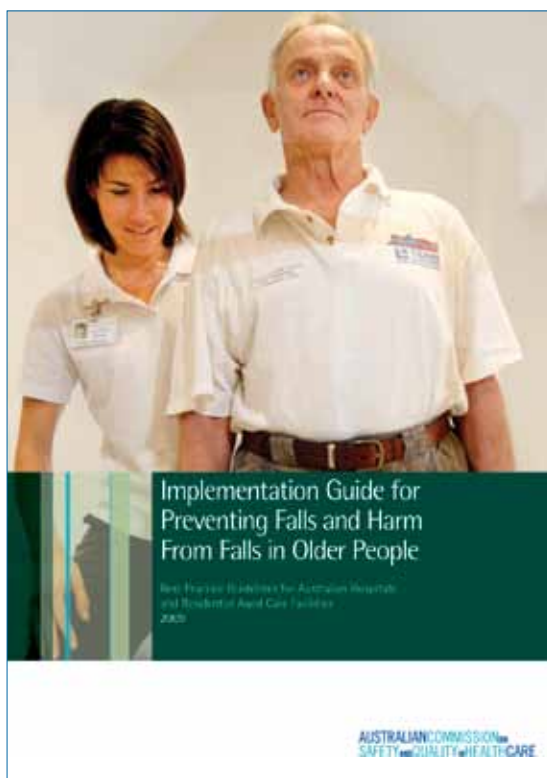
Implementation Guide for Preventing Falls and Harm From Falls in Older People

The Guidelines, and all the supporting documents, are available from the Commission's website at: http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/FallsGuidelines

Future directions

The Commission encourages use of the Guidelines to improve the safety and quality of care for older Australians. To that end, hard copies of the Guidelines and support materials are now available to facilities and individuals (Details are available on the Commission's website). Details of the Guidelines, and the key messages, are being directly provided to key groups and individuals, including facility owners and managers, insurers, accrediting services, learned colleges, professional bodies and policy makers.

In addition to the direct implementation support being provided by the Commission, other national activities will improve integration of the Guidelines into practice. The development of the National Safety and Quality Health Service (NSQHS) Standards as part of a model national accreditation scheme is discussed in Chapter 7. Standard 10 is *Preventing Falls and Harm from Falls* and explicitly includes the implementation of the Guidelines.

Ensuring that the Guidelines stay up-to-date is vital. A program of ongoing review is planned, culminating in the next iteration of the guidelines in 2014. Suggestions for change and new evidence can be provided to the Commission, where a change request register will be maintained. In addition, the Commission will explore the need for an ongoing, web-based repository of information for users of the Guidelines and those interested in preventing falls more generally. This could provide links to the latest falls and falls prevention research and practice.

The Commission will continue working with consumers, clinicians, health services and other organisations to support ongoing attempts to bridge the gap between practice and evidence, to identify resources for falls prevention initiatives and to build the evidence base for falls prevention.

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9

Improving medication safety

Medicines are the most commonly used healthcare treatment in Australia. They relieve symptoms, improve quality of life and prevent or cure diseases.

Australia has a system which generally provides consumers with safe medicines. The Therapeutic Goods Administration (TGA) regulates safety and quality of medicines, including where and how they can be sold. We also have a health system which usually delivers medicines safely with a highly trained and professional work force who strive to ensure that medicines are prescribed, dispensed and administered correctly.

As with all forms of health care, however, there is a risk of error, some of which can harm patients. In addition, medicines may cause adverse reactions. There are two major types of adverse *medicine events* that can occur. The first are called *medication errors* and are the result of an error in delivering the medicine, such as the wrong medicine being prescribed or used, or used inappropriately. The second are called *adverse drug reactions,* which occur because of unintended side effects of the medicine.

Because they are commonly used, medicines are associated with more errors, and more adverse events, than any other aspect of health care.[1-2] It is estimated that around 2–3% of all hospital admissions are medicines-related, with as many as 30% of unplanned geriatric admissions being associated with an adverse drug event.[3] Around half of these admissions are considered potentially avoidable (range 32–77%)[3] In 2006–07 there were 101,003 hospital separations associated with an adverse medicine event in Australia.[4] The cost of medication-related admissions to hospital in Australia is estimated at $660 million per year.[5]

Medication safety has been identified by the Commission as a priority area for activity. There are many organisations actively working at both national and local levels to improve the safety and quality of medication use in Australia.

In 2008, the Commission undertook a medication safety and quality scoping study to understand how it could best apply its resources to such a large therapeutic domain.[6] The study found that while there is much activity to improve medication safety and quality in Australia, including with consumers, much of the work is uncoordinated, there is duplication of effort, and some important patient safety activities are either not occurring or are being implemented inconsistently. The study recommended that the Commission provide national leadership and strategic direction for a national approach to reducing patient harm from medicines. It also recommended 45 specific actions to improve national medication safety and quality.

The Commission systematically analysed the 45 recommendations and prioritised them along five key themes:

1. Standardisations and system improvements
2. Continuity of medicines management
3. Reducing gaps in practice
4. Using technology
5. Advocating safety and quality.

This chapter considers each of these themes in turn.

Standardisations and systems improvements

Many solutions to medication error are to be found in standardisation and require strategic leadership and coordination. Making things as routine as possible is recognised as the best way to overcome slips and lapses, which are the most common causes of medication error in acute care.[7-8] Patient safety is being improved by a range of standardised processes and tools.
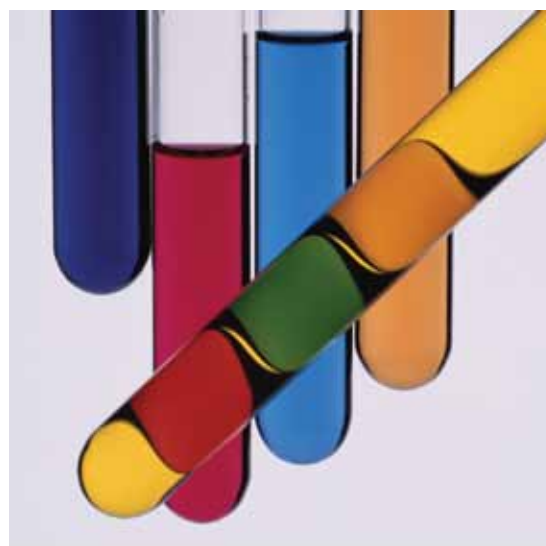
National Medication Safety and Quality Scoping Study

National Inpatient Medication Chart

A number of elements in the medication management cycle have been standardised. The first major standardisation began in April 2004 when Australian Health Ministers agreed that all public hospitals should use a common medication chart. The National Inpatient Medication Chart (NIMC) was implemented during 2006 and 2007, and is now being used nationally in all public hospitals (with a few exceptions) and for a majority of private hospital patients. The NIMC has standardised the communication of medication information between doctors, nurses and pharmacists working in hospitals, and aims to reduce harm to patients from medication errors. Pre and post-implementation audits of the charts demonstrated both improvement in documentation and reduced risk to patients. Based on data comparing 21,000 medication orders at 31 sites prior to NIMC implementation with 35,000 medication orders from 300 sites after implementation, the implementation of the NIMC has improved the safety of some important aspects of prescribing in most hospitals.[9]

Specialist versions of the NIMC are also available. A long-stay (28 day) version of the NIMC is available for stable, long-term acute care patients. In December 2008, Health Ministers endorsed paediatric versions of the NIMC and the long-stay NIMC for use with all paediatric patients. These charts incorporate specific paediatric medication safety devices. A private hospital

NIMC incorporating tear-offs for pharmacy ordering and Medicare Australia signature authentication is available. There is also a four-page NIMC which has been incorporated into GP electronic prescribing software so GPs prescribing for inpatients (mostly in rural and remote hospitals) can generate medication orders in NIMC-conforming formats.

As part of a national quality improvement process in 2008, a large meeting of public and private hospital representatives was convened to consider changes to the NIMC. Attendees included doctors, nurses and pharmacists from metropolitan, regional and rural facilities. Relatively minor changes to the NIMC were agreed and considerable support was voiced for standardisation as a safety and quality strategy.[10] A new version of the NIMC was made available in 2009.

The requirement for further work was identified, some of which emerged in 2010. For example, 22 hospitals are piloting a NIMC with a venous thromboembolism (VTE) prophylaxis section on the NIMC. It includes:

- risk assessment documentation (consistent with the National Health and Medical Research Council's (NHMRC) thrombo-prophylaxis guidelines for hospitalised patients[11])
- chemical prophylaxis prescribing and administration
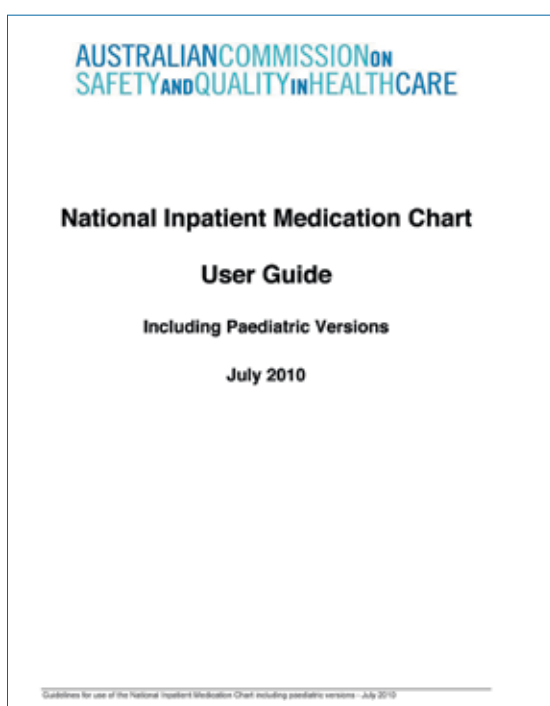- mechanical prophylaxis ordering and checking.

Paediatric National Inpatient Medication Chart

Pilot results will be reported in early 2011 and are expected to result in recommendations for a new NIMC with a pre-printed VTE prophylaxis section.

In addition to the NIMC, support materials are available for the use and management of the NIMC. These include an online NIMC training module (maintained by the National Prescribing Service Ltd), the *NIMC User Guide*,[12] and *Jurisdictional Guidelines for Local Management of the NIMC*.[13] The NIMC Oversight Committee advises the Commission on national version control and implementation of the NIMC and includes public and private hospital representatives and content experts.

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National Inpatient Medication Chart

User Guide

Including Paediatric Versions

July 2010

Guidelines for use of the National Inpatient Medication Chart including paediatric versions - July 2010

National Inpatient Medication Chart User Guide

Standardisation of the medication management cycle has moved beyond standardised medication charts to auditing of the charts, and to standards which have application both in and beyond the hospital environment. These include standard terminology, abbreviations and symbols for use in prescribing and administering medicines,[14] and standard user-applied labelling of injectable medicines, fluids and lines.[15]

Regular auditing of the NIMC enables hospitals to:

1. Identify areas of good medication management practice.

2. Focus on areas of practice requiring improvement.

3. Benchmark their NIMC use with peer and all other hospitals.

A nationally agreed list of audit data elements reflected in an audit tool[16] is available and the first NIMC national audit took place in 2009. A report on the audit was released in 2010.[17] A national audit will take place again in 2011, this time using a NIMC National Audit website in which hospitals load their data and obtain real-time reports on audit results including comparisons with peer hospitals and all other hospitals. Participating hospitals will be able to track their use of the NIMC and its safety features on an ongoing basis. They will also be able to use it for local audits. The 2011 NIMC National Audit will indicate which NIMC safety features are being consistently used so that subsequent audits can focus on practice areas requiring improvement or modification.

Ancillary medication charts are used for specific practice areas, such as palliative care, insulin and anticoagulation medication (such as heparin). The NIMC Oversight Committee considers recommendations to develop national, standardised ancillary charts where there is a clear patient safety benefit. For example, in late 2010 a heuristic analysis will be undertaken of existing hospital insulin charts to report on the safest way to record insulin prescribing, administering and reconciling information and blood glucose levels. It is expected to create a list of essential safety elements for insulin charts, and may indicate the way forward to national insulin charts. The Commission is also analysing existing anticoagulation charts (mostly heparin charts) and will make recommendations on a possible national heparin chart in 2011.

Recommendations for terminology

The national *Recommendations for Terminology, Symbols and Abbreviations to be Used in the Prescribing and Administering of Medicines*[14] is available from the Commission's website at http://www.safetyandquality.gov.au

The Recommendations were endorsed by Australian Health Ministers in December 2008. Originally developed by the New South Wales Therapeutic Advisory Group, the document provides principles for consistent prescribing terminology, a set of recommended terms and acceptable abbreviations, and a list of error-prone abbreviations, symbols and dose designations that have a history of causing error and must be avoided. It is another standardisation initiative to reduce the rate of error and the risk of harm to patients from misunderstood, mistaken or dangerous abbreviations and symbols.

Recommendations for Terminology, Abbreviations and Symbols used in the Prescribing and Administration of Medicines

Recommendations for labelling

Labelling is a recognised risk in the safe administration of injectable medicines. It is often not done or is incomplete.[18-24] Harm and death from medication administration errors as a result of inadequate labelling is an issue across the world. In 2010, *National Labelling Recommendations for User-applied Labelling of Injectable Medicines, Fluids and Lines*[15] were made available to help reduce the risk of patient harm from inadequate or absent labelling of all injectable medicine products and related containers and conduits. These are available from the Commission's website at http://www.safetyandquality.gov.au

The recommendations identify:

- what should be labelled
- what should be included on the label
- where the label should be placed.

The recommendations were piloted in 12 clinical practice areas in hospitals across Australia and resulted in standard labelling recommendations for use in all clinical settings where injectable medicines and fluids are administered. The recommendations aim to:

1. Promote safer use of injectable medicines.
2. Provide standardisation for user applied labelling of injectable medicines.
3. Provide minimum requirements for user applied labelling of injectable medicines.

They complement existing Australian standards for user-applied labels for use on fluid bags, syringes and drug administration lines.[25-26] In November 2010, Health Ministers endorsed the recommendations for use in all applicable clinical settings.
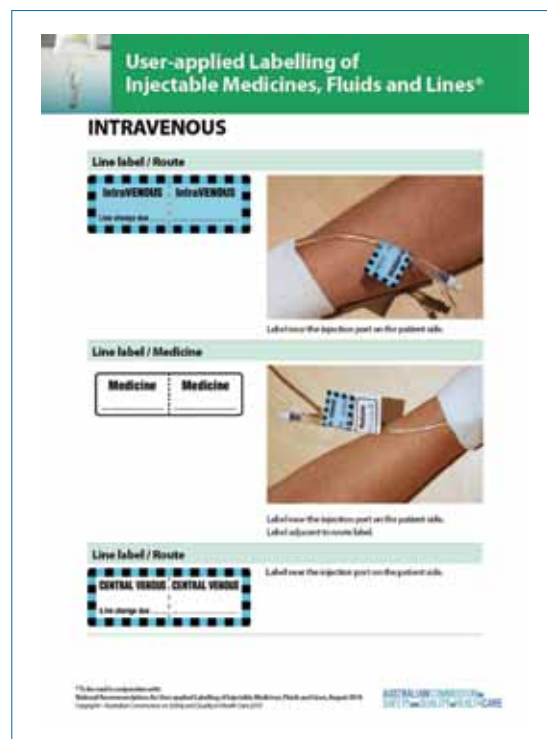
Injectable Medicines Labelling Recommendations

Continuity of medicines management

The interface between different care settings is particularly prone to error and a potential target for interventions to reduce medication errors.[27]

Many individuals and organisations work to ensure consistent and accurate medicines information across the entire range of healthcare settings. Nonetheless there is a high risk of error during transfer of information within and between healthcare settings[28-30] with up to a third of these errors resulting in patient harm.[31-34] Assuring medicines accuracy at these transitions of care is a Commission priority.

The process of medication reconciliation has been shown to reduce errors and adverse events associated with poor quality information at transfer of care and inaccurate documentation of medication histories on patient admission to hospital.[32, 35-36] Medication reconciliation is a formal process of obtaining and verifying a complete and accurate list of each patient's current medicines, and comparing the list with the medicines

prescribed, — matching the medicines the patient *should* be prescribed to those they are *actually* prescribed. Where there are discrepancies, these are discussed with the prescriber and reasons for changes to therapy are documented. When care is transferred (e.g. between wards, hospitals or home), a current and accurate list of medicines, including reasons for change is provided to the person taking over the patient's care.

Medication Management Plan

Australia is participating in the World Health Organization's High 5s Project — Assuring Medication Accuracy at Transitions of Care (http://www.high5s.org/). Twenty-eight hospitals in Australia are participating in the project which:

- aims to prevent adverse medicine events through medication reconciliation
- tests a standard operating protocol using the process of medication reconciliation to assure medication accuracy at transitions of care.

This is a five year project that is due to conclude in 2015. The first (current) phase is introducing medication reconciliation for patients 65 years of age and older who are admitted to an inpatient ward from the emergency department. The project scope will be expanded as it progresses to include all patients in both inpatient and outpatient settings.

The standard operating protocol for medication reconciliation tested through the project is consistent with Australian practice, including aligning with the

Match Up Medicines poster

former Australian Pharmaceutical Advisory Council's *Guiding principles to achieve continuity in medication management.*[37]

A range of resources have been made available to assist hospitals implementing the medication reconciliation process. These include a standard Medication Management Plan (MMP) and user guide. Available from the Commission's web site http://www.safetyandquality. gov.au. The MMP is a form that contains:

- a comprehensive medication history form, with space for recording reconciliation
- prompts for obtaining patient information
- dedicated space for documenting medication issues during the care episode
- medication discharge checklist.

The MMP can be used by nursing, medical, pharmacy and allied health staff to improve the accuracy and completeness of medicines information documentation and the continuity of medicines management. It can also assist in preparing discharge documentation. It is a standardised form with which health professionals should become increasingly familiar and to which they may look for medicines-related information. Together the MMP and NIMC can form the patient's medication record. Other resources available include a *Match Up Medicines* medication reconciliation brochure, posters and a PowerPoint presentation.

Reducing gaps in practice

Implementation of clinical guidelines can improve clinical decision-making and patient outcomes by ensuring practice is in the context of the latest evidence. However, there is evidence that application of clinical guidelines is sub-optimal and that gaps exist between practice and evidence.[38] Patient safety is being improved by:

- reducing gaps in practice, including in antimicrobial stewardship, anticoagulation prophylaxis and therapy
- assisting practice through providing medication safety alerts and other guidance
- improving performance of systems and individuals through self-assessment and indicators.

Safe and effective use of antimicrobials is a safety and quality priority. The *Antimicrobial Stewardship in Australian Hospitals* will be available in early 2011.[39] The book provides guidance on developing and introducing a hospital antimicrobial stewardship program. It describes

the structure and governance required, and the resources needed, for an effective program, along with strategies shown to influence antimicrobial prescribing and inappropriate use.

Anticoagulation is another area of focus for the Commission. As a high-risk medicine category, a range of advice and guidance relating to anticoagulant use, including heparin and warfarin, is available on the Commission website.[40] Despite the frequency with which venous thromboembolism (VTE) occurs in hospitalised patients and the well-established efficacy and safety of preventative measures, prophylaxis is often under-used or used sub-optimally.[38] In 2010, a project to improve the rate of VTE prophylaxis in Australian private hospitals concluded. The Commission funded the National Institute for Clinical Studies to extend its successful VTE prevention program in public hospitals to private hospitals. Thirty-six private hospitals participated with the average proportion of patients at high-risk of VTE who received appropriate prevention measures increasing from 53% at baseline to 62%. Eleven hospitals improved their provision of VTE prophylaxis by more than 25%.[41]

In 2010, a VTE Prevention Summit was held to promote the new NHRMC's *Clinical Practice Guidelines for the Prevention of Venous Thromboembolism in Patients Admitted to Australian Hospitals*[11] and highlight jurisdictional initiatives to reduce the incidence of VTE in hospitalised and community-dwelling people.

The Commission promotes the use of medicines-related clinical practice guidelines. It also encourages the use of self-assessment tools to test the safety of medicines systems[42] and clinical practice indicators for measuring performance.[43] In 2010, following the release of the NHMRC's thrombo-prophylaxis guidelines, review of the specialist *Medication Safety Self Assessment for Antithrombotic Therapy* in Australian Hospitals (MSSA-ATT)[44] and the *Indicators for Quality Use of Medicines in Australian Hospitals* [43] will commence. This work will help ensure that both the MSSA-ATT and the Indicators are current and represent latest evidence and practice.

Using technology

The appropriate application of information technology in the medication management cycle has been shown to reduce prescribing errors by over half, and to eliminate incomplete orders.[45] There is the potential to address

error rates relating to prescribing decisions with effective decision support incorporated into electronic systems.[45] However, despite the safety benefits of electronic medication management systems (including electronic prescribing), uptake in the acute and residential aged care sectors has been slow.

The implementation of electronic medication management systems (EMMS) is not without its challenges. There is a risk of introducing new errors if the implementation is not well planned, if there is no inbuilt decision support and safety features, and if the system is not linked with other key hospital systems.

Poorly designed applications and failure to appreciate the organisational implications associated with their introduction can introduce unexpected new risks to patient safety.[46]

A toolkit is being produced to assist hospitals in the selection and implementation of EMMS as a key strategy for improving patient safety and the quality of care. The toolkit draws on local and international experience and provides advice on:

- specifying and procuring safe EMMS
- safely implementing EMMS.

The National E-Health Transition Authority (NEHTA) is charged with creating better ways of electronically collecting and securely exchanging health information. The Commission works closely with NEHTA to maximise the safety and quality benefits of electronic health initiatives, including through electronic transfer of prescriptions between general practitioners and community pharmacists, and through electronic information provision and delivery on discharge from hospital.

Advocating safety and quality

The 2009 *National Medication Safety and Quality Scoping Study* identified safety and quality advocacy as a possible role for the Commission in regard to medicines.[6] Advocacy requires working with other organisations to ensure the full safety and quality benefits of their activities are realised and to promote new activities with known safety and quality benefits. For example, the Commission advocates the safety and quality benefits of:

- electronic health initiatives to NEHTA and the Department of Health and Ageing

- primary care and consumer initiatives to the National Prescribing Service
- safer naming, labelling and packaging of medicines to the TGA and the pharmaceutical industry
- standardisation initiatives to public and private hospitals.

Future directions

Further work in medication safety and quality will continue by building on past achievements and identifying further opportunities. While continuing to focus on the acute sector, the program will expand its engagement with the primary care and community sectors, including the possibility of a standard medication chart for residential care and a suite of standard medication charts for domiciliary care. Work will continue with researchers to ensure that there is sufficient and appropriate evidence for improvements in medication safety.

Health services will be assisted with the adoption of electronic medication management systems through initiatives such as validation of the EMMS toolkit.

A national *Tall Man Lettering Standard* will be developed to improve patient safety by reducing the potential for similar medicine names to be confused and cause errors. Tall Man is a capitalisation technique to differentiate similar medicine names by highlighting their differences with capital letters (Table 9.1). A national *Tall Man Lettering Standard* will prevent the proliferation of various lists of Tall Man names, which may lead to inconsistency in the application of the technique and result in confusion amongst clinicians, software vendors, regulators and the pharmaceutical industry, and ensure that the best available scientific evidence is used to support the development of Tall Man names.

fluVOXAMine	fluOXETine
lamIVUDine	lamOTRIGine
niMOdipine	niFEdipine

Table 9.1 Examples of possible Tall Man lettering

Finally, medication safety and quality will continue to be advocated to governments, healthcare services, learned colleges, professional bodies and consumers as a patient safety priority and to ensure that safety and quality standardisations and other innovations are migrated into the emerging electronic health environment.

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10

Reporting for safety:
Use of hospital data
to monitor and improve
patient safety

Improving the quality and safety of health care is now a major focus across all parts of the health system from individual clinicians and health care organisations to health departments and Health Ministers and, more recently, to heads of governments.[1]

Measuring the safety of health care is a key step in the success of this activity. However, currently, there a lack of reliable and consistently reported national data on patient safety in Australian hospitals which quantifies the levels of harm or the rate of adverse events. One of the essential tools in improving patient safety in Australian hospitals is the provision of routine, accurate data on the severity and types of patient harm to clinicians, hospitals and policy makers. Sentinel events are reported annually by jurisdictions, by the Productivity Commission, and in this publication. Such reporting, however, does not constitute the timely, routine feedback of key information required to support change at all levels of the system.

The need to go beyond sentinel events and understand the magnitude of those events which occur far more often but result in relatively lower patient harm (sometimes referred to somewhat dismissively as 'mundane' events) has been argued for some time.[2] These events cause significant harm to patients. The Australian Commission on Safety and Quality in Health Care (the Commission) proposes a multi-faceted approach to the measurement of patient safety in hospitals, to prioritise and inform safety programs, and to then monitor their effectiveness. There are, however, a number of factors that must be considered in acquiring comprehensive and accurate data to monitor hospital safety.

This chapter outlines the principles of reporting for safety, and discusses the issues of measurement.

Indicators and events

In 2008, the Council of Australian Governments announced that the National Healthcare Agreements (NHA) between the Australian Government and the States and Territories would incorporate an expanded set of performance indicators for annual reporting, as well as nine benchmarks.[3] One group of NHA performance indicators is Selected Adverse Events in Hospitals. These are:

- healthcare acquired infection *Staphylococcus aureus* bacteraemia (HAI SAB)
- falls
- pressure ulcers

- adverse drug events
- intentional self-harm.

Of these five hospital-level Performance Indicators which seek to measure adverse event rates, only *Staphylococcus aureus* bloodstream infection (called 'bacteraemia') is currently nationally reported by hospitals and jurisdictions. The Commission supports the policy intent of such performance indicators, but recognises that the dearth of accurate monitoring systems for adverse events in hospitals is likely to make national implementation difficult in the short term.

While healthcare associated infection can serve as a 'canary' marker for quality of care and patient safety[4], it does not necessarily correlate with all adverse event types. A 'balanced measurement framework' for patient safety, in which safety performance — the true rates of adverse events — is one of the elements in a hospital's approach to measuring patient safety has been suggested (Table 10.1).[5]

It is highly appropriate for hospitals to routinely monitor common and significant types of frequent, lower level harm events given the volume of morbidity and hospital bed days for which they are responsible. A number of safety targets and practices where proven interventions are indicated were identified in 2002 (Table 10.2).[6]

This work may well be due for renewal. Nevertheless, it was a powerful driver to promote activity in areas where evidence of benefit to patients was strong at a time when there was less system-wide agreement on the priorities for improvement activity. It was, however, an exercise that encouraged a focus on problems with proven solutions rather than seeking solutions to the problems with the most significant burden of harm.

An example of the importance of, and measurement issues associated with, two specific adverse events for which evidence-based interventions can reduce incidence and severity is found in Box 10.1.

The need to understand and reduce rates of these events is well established. What is still less well determined is how best to monitor rates and trends to drive improvement.

The need to monitor and reduce such adverse event rates also highlights the data and measurement conundrums:

- Are *process* or *outcome* measures better for understanding safety?

Table 10.1 'Balanced Patient Safety Measurement Framework'[5]

Measurement domain	What this measure is best for	Measurement source	What this measure cannot do	Use of this measure in Australia
Safety learning	Understanding *why* incidents occur	Incident reports Incident analysis findings Claims data	Determine safety performance (reported incidents actual incidents)	Well established
Safety action	Determination of whether the corrective action is being performed	Compliance audits of specific patient safety initiatives (e.g, observation audit of handwashing)	Determine whether the action has led to improved safety (implementing a strategy does not guarantee improved safety)	Poorly established
Safety performance	Determination of true adverse event or injury *rate*	Coded medical record data for hospital acquired injury Trigger tools Standardised mortality data and variable life adjusted displays (VLADs)	Determine the underlying causes for incidents (merely knowing adverse event rate does not contribute to improved safety)	Variable
Patient experience	Understanding whether patients *feel safe* and trust health care staff and health care system and measuring patient reported harm	Patient surveys Complaints and compliments Online patient rating systems	Determine safety performance (feeling safe is important but is not necessarily equated with low rates of harm)	Variable
Staff attitudes and behaviour	Understanding organisational safety culture	Staff safety culture measurement tools (e.g, Safety Attitude Questionnaire [SAQ]; Manchester Patient Safety Framework [MaPSaF])	Determine safety performance	Variable

Table 10.2 Patient safety practices supported by evidence[6]

Patient Safety Target	Patient Safety Practice
Greatest Strength of Evidence	
Venous thromboembolism (VTE)	Appropriate VTE prophylaxis
Perioperative cardiac events in patients undergoing noncardiac surgery	Use of perioperative-blockers
Central venous catheter-related bloodstream infection	Use of maximum sterile barriers during catheter insertion
Surgical site infections	Appropriate use of antibiotic prophylaxis
Missed, incomplete, or not fully comprehended informed consent	Asking that patients recall and restate what they have been told during informed consent
Ventilator-associated pneumonia	Continuous aspiration of subglottic secretions (CASS)
Pressure ulcers	Use of pressure-relieving bedding materials
Morbidity due to central venous catheter insertion	Use of real-time ultrasound guidance during central line insertion
Adverse events related to chronic anticoagulation with warfarin	Patient self-management using home monitoring devices
Morbidity and mortality in postsurgical and critically ill patients	Various nutritional strategies
Central venous catheter-related bloodstream infections	Antibiotic-impregnated catheters
High Strength of Evidence	
Mortality associated with surgical procedures	Localizing specific surgical procedures and procedures to high-volume centers
Ventilator-associated pneumonia	Semirecumbent positioning
Falls and fall injuries	Use of hip protectors
Adverse drug events (ADEs) related to targeted classes (analgesics, potassium chloride, antibiotics, heparin) (focus on detection)	Use of computer monitoring for potential ADEs
Surgical site infections	Use of supplemental perioperative oxygen
Morbidity and mortality	Changes in nursing staffing
Missed or incomplete or not fully comprehended informed consent	Use of video or audio stimuli
Ventilator-associated pneumonia	Selective decontamination of digestive tract
Morbidity and mortality in intensive care unit (ICU) patients	Change in ICU structure — active management by intensivist
Adverse events related to discontinuities in care	Information transfer between inpatient and outpatient pharmacy
Hospital-acquired urinary tract infection	Use of silver alloy — coated catheters
Hospital-related delirium	Multicomponent delirium prevention program
Hospital-acquired complications (functional decline, mortality)	Geriatric evaluation and management unit
Inadequate postoperative pain management	Nonpharmacological interventions (e.g, relaxation, distraction)

- How do we best measure practice (process) or outcomes?

One reason reporting on hospital safety has focused on sentinel events is the difficulty in achieving consistent and accurate measurement of adverse events of a broader range of severity, with or without risk adjustment. Sentinel events for public and private hospitals are reported in Box 10.2, showing total numbers of these events in Australia for each year.

The following section considers some of the issues around developing better routine measurement for monitoring and improving hospital safety.

> ### Box 10.1   Adverse events — a worked example
>
> Two examples of harm to patients in Australian hospitals that have a significant impact on patients' hospital experience and subsequent lives are:
>
> - venous thromboembolism (VTE)
> - pressure ulcers
>
> Both can be significantly reduced by broader uptake of care guidelines[7-8] as assessment and prophylactic techniques for both these conditions are well established. Where discharge is delayed due to these conditions, excess bed days due to VTE and ulcers can contribute to access block for acute admissions from emergency department and deferral of elective surgery for public hospital patients.
>
> A study of administrative data from 68 hospitals in two states identified 2,873 cases of pressure ulcers at a total cost of $24.3 million.[9] Another study calculated that 398,000 bed days annually can be attributed to hospital-acquired pressure ulcers.[10] Venous thromboembolism is responsible for 30,000 hospitalisations and 2,000 deaths in Australian hospitals annually.[7,11]
>
> The National Healthcare Agreement Performance Indicators originally included a requirement for jurisdictions to report rates of pressure ulcers in hospitals[3], and in a report requested by the Commission in 2007, the Australian Institute for Health and Welfare (AIHW) recommended assessment for risk of venous thromboembolism in hospitals as a national indicator of safety and quality.[12]

Existing approaches to hospital safety measurement

To date, there have been at least three approaches to quantify adverse event incidence:

- manual surveys and audits, including chart and bedside audits and trigger tool methodologies[17]
- use of coded or 'administrative' data
- counts extracted from Incident Reporting Systems (IRS).

Chart and bedside audits

It is difficult to accurately ascertain adverse event rates from existing data, yet it is imperative that clinicians, administrators and policy makers have a more detailed understanding of the levels of harm at hospital level. This level of information is essential in supporting the accurate and dynamic feedback loop built into all quality improvement approaches.

Chart and bedside audits can be used to generate detailed information on rates and type of adverse events for a sample of patients in a hospital in a given reference period. The landmark *Quality in Australian Healthcare Study* (QAHCS) used a structured and specific approach to chart audits to identify 2,353 adverse events in records from 14,179 admissions in 28 hospitals.[18]

More recently, a pressure ulcer point prevalence study involving 6,371 consenting patients was conducted across 137 Queensland Health facilities to identify the prevalence rate and severity of pressure ulcers. Clinicians were trained to apply a consistent and reliable audit approach which involved risk and skin assessment, as well as review of the documentation and clinical incident reporting system.

One finding was the reduction in prevalence of pressure areas across Queensland Health facilities, with the 2008 audit reporting 15.2% prevalence, down from 18.4% in 2003. Another significant finding was that only 43% of the pressure ulcers were documented. This means that analysing administrative data from even the most diligently coded of medical records would only report about half of all pressure ulcers treated. Even more significantly, only 24.9% of the pressure ulcers were recorded in the clinical incident reporting system, including reporting of only 29% of the most severe (Stage IV) pressure ulcers.[19]

Box 10.2   Sentinel events

* From 2007–08 the national definition of the first sentinel event was revised to focus on those events that
  resulted 'in death or major permanent loss of function'

Table 10.3 Public sector sentinel events

Sentinel event type	2005–06	2006–07	2007–08*	2008–09
Procedures involving the wrong patient or body part *resulting in death or major permanent loss of function.*	66	159	21	8
Suicide of a patient in an inpatient unit	25	41	32	20
Retained instrument or other material after surgery requiring re-operation or further surgical procedure	28	28	34	30
Intravascular gas embolism resulting in death or neurological damage	2	3	1	2
Haemolytic blood transfusion reaction resulting from ABO incompatibility	1	2	4	4
Medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs	5	11	21	10
Maternal death or serious morbidity associated with labour or delivery	12	13	22	9
Infant discharged to the wrong family	0	0	2	0
Total	**139**	**257**	**137**	**83**

Table 10.3 Private sector sentinel events

Sentinel event type	2005–06	2006–07	2007–08*	2008–09
Procedures involving the wrong patient or body part *resulting in death or major permanent loss of function.*	13	28	1	3
Suicide of a patient in an inpatient unit	5	4	8	11
Retained instrument or other material after surgery requiring re-operation or further surgical procedure	16	27	14	14
Intravascular gas embolism resulting in death or neurological damage	1	3	0	0
Haemolytic blood transfusion reaction resulting from ABO incompatibility	2	1	2	1
Medication error leading to the death of a patient reasonably believed to be due to incorrect administration of drugs	0	0	1	0
Maternal death or serious morbidity associated with labour or delivery	7	4	9	6
Infant discharged to the wrong family	0	0	0	0
Total	**44**	**67**	**35**	**35**

The number of private hospitals voluntarily reporting sentinel event numbers has varied each year. Figures for 2008–09 cover facilities operating 22,475 beds, which is almost 82% of the 27,466 private hospital beds in Australia.

Sentinel Events (SEs) are subject to a review and Root Cause Analysis (RCA). Typically, the occurrence of an SE is the culmination of a set of system failures.[13] Sentinel event review at hospital level can trigger major process and even infrastructure changes, but it is not clear that we can eliminate sentinel events.

The focus on reporting these serious events represents a significant commitment to transparency in the Australian healthcare system. However, the focus on counting and classifying these extremely low volume SEs, without reference to the hospital population or throughput of each jurisdiction, and with no statistical analysis, continues to mislead the public.

Sentinel events numbers should not be used to compare states and territories for the following reasons:

- SEs only represent a sample of the most serious adverse events. For example, a quarter of patients with bloodstream infections die from the infection[14], and better management of heart attacks would improve in-hospital and 30-day survival.[15] The correlation of defined SEs to all reducible hospital deaths has not been established.

- It is probable that there is undercounting of SEs.

- Applying appropriate statistical techniques for presentation of low volume events as a proportion of very large denominators — there were 8.1 million admitted patient episodes 2008–09, 4.9 million in public hospitals and 3.2 million in private hospitals[16] — would possibly identify that in fact there is no significant difference between jurisdictional 'rates'.

Characteristics of well-designed chart and bedside audits can be seen in the QAHC study, and the Queensland pressure ulcer study previously mentioned. These include:

- *Robustly calculated sampling.* For example, all eligible patients are audited for a fixed period (as in the Queensland study), or a cohort is designed with appropriate statistical power and representation of hospitals by type (as in the QAHCS design);

- *Consistent application of the audit tool.* The same assessment criteria, process and indicative time is allocated to each chart review in the sample. Queensland Health's pressure ulcer audit used a proven assessment tool already used by in Western Australian and Victoria, and QAHCS published their chart review method.

- *Routine incorporation of inter-rater reliability testing.* Consistency of process and approach is matched by attempts to identify whether different auditors will produce a different result when assessing the same case, and a clear method for resolution of auditor variation.

Studies of the scale of the QAHCS have not been repeated in Australia, nor has there been adequate comparison against other methodologies to ascertain if this is indeed the 'gold standard'. Rigorous 'snapshot' audits of sample patient populations, although expensive, labour-intensive and time-consuming, are an important

alternative approach to the generation of routine adverse event rates by type. It is possible that these manual approaches offer a higher reliability than coded or administrative data sources, but at a higher cost.

Coded or 'administrative' data

Before July 2008, coding from inpatient records in Australian hospitals (outside Victoria and Queensland) did not differentiate between injuries present on admission and injuries acquired in hospitals. The introduction of the 'Condition Onset Flag' as part of the 6th Edition of the *International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM)*[20] on 1 July 2008, introduced the potential for understanding adverse events for admitted patients, based on the use of the flag in Victoria.[21]

Professor Terri Jackson and others explored the use of coded data to quantify specific types of harm in the Cost of Hospital Acquired Diagnoses (CHADx) project funded by the Commission.[22-23] The use of the CHADx classification to generate routine reports at hospital level, on specific types of harm, shows promise as a monitoring component in local safety programs. However, use of the flag has not yet been audited nationally, and there may be concerns in using rates generated from coding without such work being undertaken. Simple measurement of the uptake

of the condition onset flag has demonstrated significant variance between State and Territory rates of Condition Onset Flag coding.[24]

Incident reporting systems

This list of sentinel events, reported in *Windows into safety and quality in health care 2008 and 2009*, significantly under enumerates the number of the most severe events with consequences for hospital patients. Similarly, incident reporting systems also tend to under enumerate lower severity adverse events. Incident reporting systems are essentially workflow systems for hospital event management; it is misleading to consider them as quantitative databases.

In addition, a hospital with a strong and transparent culture of reporting adverse events to understand and improve safety is likely to register more incidents than a hospital with a poor reporting culture. Box 10.3 outlines some of the strengths and limitations of incident reporting systems.

Developing a national approach to measuring patient safety

In July 2010, the Commission convened a national Expert Round Table to identify improved approaches to patient safety measurement for hospitals. Areas for further research were identified, built around a core recognition that the purpose of safety measurement is to minimise patient harm.

Three elements are required to achieve meaningful measurement of hospital safety:

- identification and specification of valid measures of patient safety
- development of accurate and feasible data collection
- appropriate risk adjustment, so that hospitals whose casemix is predisposed to higher rates of adverse events are not subject to unfair comparisons.

The following principles were identified as a guide in developing a national approach to patient safety measurement:

1. No single measure can provide a comprehensive hospital patient safety measurement.
2. Safety performance measurement should be based on measurement of harm and its correlates.
3. Patient safety measurement should lead to better understanding of safety for clinicians, patients and managers.

4. Patient safety measurement is always coupled with action.
5. Patient safety measurement should include a succinct set of common national measures that can be applied in public and private hospitals.
6. Patient safety measurement must provide the ability to track trends in patient safety over time.
7. Patient safety measures should meet the needs of a range of reporting requirements, reducing duplication and multiple reporting parameters.
8. The impact, utility and reliability of patient safety measures should be reviewed routinely.
9. Patient safety reporting should be subject to expert analysis with contextual information.

Future directions

In 2009, the States and Territories agreed to routinely monitor a set of core, hospital-based indicators at the hospital level. These include several mortality measures (hospital standardised mortality ratios or HSMRs, death in low mortality, DRGs (diagnosis-related groups), in-hospital mortality), healthcare associated infections (*Staphylococcus aureus* bacteraemia and *Clostridium difficile* infections) and certain rates of unplanned readmission. The intent of this project is to provide signals for the investigation of safety and quality of care issues. Similarly, diligent use of patient experience surveys (see Chapter 2) can provide important signals for understanding safety issues.

Further work on assessing candidate measures and data sources for robustness, reliability, cost and meaningful presentation techniques is part of the Commission's work in the coming year.

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Box 10.3   Incident reporting systems

There has been a significant investment in Incident Reporting Systems around Australia.

Within a hospital, an incident reporting system supports adverse event workflow by:

- providing a report template for staff to record incidents in a standard format
- identifying the time, place and nature of the incident, as well as the patient and staff member(s) involved
- determining actions taken to resolve or mitigate the incident, where possible
- sending notifications of the incident report to appropriate clinical leaders and hospital management and executives
- providing a hospital-level 'database' for analysis and review of incidents.

However, incident reporting system have not in general been subject to a benefits analysis. The volume of incidents reported by a hospital is as likely to reflect that facility's reporting culture than actual levels of harm. Even where incident reporting system numbers are analysed, appropriate statistical techniques and meaningful denominators for the calculation and presentation of 'rates' are rarely used.

In 2008 the Commission funded work to analyse a large sample of patient identification and medication incidents. The conclusions included:

A lack of detail in the narratives limited the analysis and interpretation of the patient safety incidents.

Machine learning can be effectively used to automatically identify incidents using free-text narratives with high accuracy. Automatic classification can significantly improve the efficiency of identifying specific types of incidents from within the population of thousands of incidents stored in incident reporting databases.

The number of principal natural categories — the manifestation of the patient safety failure in its clinical context — reached saturation with analysis of between 300 and 400 incident reports with the degree of detail studied. A substantial number of categories are captured with analysis of 200 incidents, particularly for clinical management incidents, which were more uniform in nature

The work suggests that analysis of large collections of clinical handover and patient identification incident reports provides no substantial new learnings. Aggregating clinical handover and patient identification incidents reports for analysis did not provide new insights into the underlying causes of these types of incidents. The main limitation to harnessing learnings from the incident collections was the poor quality and limited information found within individual incident reports. This applies equally to the quality of the classification and quality of the narrative.

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