TeamSTEPPS™

Implementation of a teamwork programme into an Australian Setting

Public Report on Pilot Study

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This pilot study was funded by the Australian Commission on Safety and Quality in Health Care (ACSQHC) as part of the National Clinical Handover Initiative. Each study within the Initiative aimed to design transferable improvement tools and solutions for handover that could be localised to different contexts. This Public Report provides a summary of the pilot study undertaken; for additional details please contact ACSQHC.

ACSQHC acknowledges that the information contained in this one-year study presents initial developments and supports longer-term research and evaluation. The information presented here does not necessarily reflect the views of the Commission, nor can its accuracy be guaranteed.

Table of Contents

List of Figures and Tables

1. Abstract

TeamSTEPPS™ is an evidence-based teamwork training system developed by the US Department of Defense Patient Safety Programme in collaboration with the Agency for Healthcare Research and Quality (AHRQ). It has four teamwork competencies comprising of leadership, situation monitoring, mutual support and communication that characterise effective communication and teamwork. The objectives of the project in South Australia were to implement TeamSTEPPS™ in five sites and to evaluate the content and process for its validity in handover in the Australian context.

The evaluation concluded that the TeamSTEPPS™ programme is applicable, relevant and adaptable to the Australian health care context. The sites embraced the TeamSTEPPS™ philosophy of improving teamwork, communication and patient safety through structured communication techniques. Implementation generally was observed to have occurred systematically and in collaboration with multi-disciplinary team members. Process changes included improved quality of communication, handover, teamwork and relationships. The structural changes included the introduction of patient whiteboards, the restructuring of clinical loads, clear and visible team roles and responsibilities, and the introduction of patient charts to facilitate handover. Outcome changes included time and resource efficiencies and opportunities for improved coordination of clinical care.

Communication and teamwork supports clinical activity, is part of delivering daily care, and provides a safety net for patients. TeamSTEPPS™ therefore should not be seen in isolation as a quality improvement activity and its system-wide benefit would be realised through its integration into existing programmes and processes.

2. Executive Summary

Communication breakdown or a lack of teamwork can contribute to adverse patient outcomes. Communication is cited as a contributing factor to serious adverse events in Australia. Consistent and reliable transfer of information between and within teams of health care professionals relies on individual knowledge, skills and attitudes of team work generally, and communication specifically. Clinical handover, defined as the transfer of professional responsibility and accountability[1], is a critical process to patient safety. Teamwork and effective communication is essential to safe clinical handover.

The objectives of the project in South Australia were to implement TeamSTEPPS™ and to evaluate the content and process for its validity in handover in the Australian context. The evaluation sought to determine if TeamSTEPPS™ improves the knowledge, attitudes and skills in relation to communication and teamwork associated with the transfer of information and responsibility between clinicians on patient care.

TeamSTEPPS™ was implemented in four metropolitan and one rural health service. The sites nominated to participate in the project included an emergency department and inpatient mental health facility (at the same health service), a general medical ward in rural South Australia and another in metropolitan South Australia, and an admission, recovery and short stay area in another health service.

TeamSTEPPS™ has four teamwork competencies comprising of leadership, situation monitoring, mutual support and communication that characterise effective communication and teamwork. There are three distinct phases to the implementation of TeamSTEPPS™: Phase 1 'site assessment', Phase 2 'planning, training and implementation', and Phase 3 'sustainment'.

The evaluation consisted of an observation component (embedding researchers in all five sites during the critical phases of baseline, post training and post implementation) and a non-observation component, incorporating an assessment of the knowledge, skills and attitudes of participants and an assessment of organisational culture before and after the implementation. Focus groups and documentation reviews contributed to the assessment of TeamSTEPPS™ applicability to the Australian health care setting, and health care incidents reported from the sites were examined in detail to ascertain any changes in the contribution of communication and teamwork. In addition to external evaluation, the project site teams reviewed their data, identified areas for improvement and initiated measures to assess the effectiveness of the TeamSTEPPS™ tools and strategies that were introduced.

During the site assessment phase, all five sites elected to continue and proceed to the second phase of training. This involved clinical staff forming a change team and receiving education in TeamSTEPPS™ tools and principles from a team of Master Trainers during a two-and-a-half day workshop. The workshop incorporated the development of action plans to support the implementation of TeamSTEPPS™ tools and strategies. Following the workshop, the participants (health service trainers) delivered a condensed form of the training (Fundamentals) to their colleagues. It was during this period that the change teams met to complete their action plans and introduce their first TeamSTEPPS™ tool.

All sites are currently in the sustainment phase that involves embedding the changes made, refreshing the knowledge of existing staff, reviewing local data for new opportunities for improvement and supporting staff in their role of coach.

Implementation generally across all five sites was observed to have occurred systematically and in collaboration with multi-disciplinary team members. While there were individual site variations, overall there were numerous structural, process and outcome changes that resulted from implementation. Process changes included improved quality of communication, handover, and improved teamwork and relationships. The structural changes included the introduction of patient whiteboards, the restructuring of clinical loads, clear and visible team roles and responsibilities, and the introduction of patient charts to facilitate handover. Outcome changes included time and resource efficiencies and an improved patient safety culture. The introduction of the structured communication tool of SBAR (Situation, Background, Assessment, Recommendation/ Response) across all five sites streamlined the handover of clinical information. SBAR was introduced in a variety of formats including verbal communication during handover meetings, over the telephone, in documentation and in medical electronic discharge summaries. The leadership tools of briefs and huddles were also introduced to relay to other team members changes in the plan of care.

The sites embraced the TeamSTEPPS™ philosophy of improving teamwork, communication and patient safety through structured communication techniques. They valued the training, could see the worth of the TeamSTEPPS™ tools in improving teamwork and communication, and generally felt that it had improved abilities around teamwork and communication. This is true for executive sponsors, clinical sponsors, project site representatives, change team members, staff and volunteers at the sites. Following implementation there was an improvement in team assessment scores that measured different aspects of teamwork in the change teams. Across the sites there were significant improvements in the culture of patient safety and staff knowledge, skills and attitudes towards teamwork and communication. Minimal information was derived from the analysis of patient incidents due to the low number attributed to teamwork and communication as a contributing factor.

The uptake of TeamSTEPPS™ varied across sites and while sites initially used the elements of best practice in change management, there were gaps in practice as the project continued. The sites that excelled in implementation adhered to common elements of change management, for example, readiness for change and buy in, ownership of the initiative, credible leadership, hierarchy flattening, multi-disciplinary engagement, clear and visible process of implementation and integration into daily practice.

Sustainability was an integral issue across all five sites. Tools introduced early in the project were more likely to be embedded into daily practice, however this is a factor of timing and evaluation. It is expected that with ongoing action by the change team and coaching, the tools introduced later will also form part of routine care. Implementation of TeamSTEPPS™ particularly during the initial training requires dedicated resources and time to allow staff to train and receive the training.

The evaluation concluded that the TeamSTEPPS™ programme is applicable, relevant and adaptable to the Australian health care context. The programme contains the flexibility for teams to adapt their training with multiple support features offered (scenarios and vignettes). There are minor adaptations to the programme to be made to reflect the roles, language and settings of health care delivery in Australia.

3. Implementation of TeamSTEPPS™

The project governance consisted of a project team comprising of SA Department of Health staff, TeamSTEPPS™ trainers and researchers who met weekly. They were joined in alternative weeks by the project site representatives who provided regular progress reports. The Steering Committee met monthly and the South Australian Council on Safety and Quality in Health Care was given regular briefings on the progress of TeamSTEPPS™. The consumer representative on the Steering Committee provided progress reports to the South Australian Safety and Quality in Health Care Consumer and Community Advisory Committee.

3.1 Project sites

During the project initiation phase, expressions of interest were sought from Chief Executives of the health regions to participate in TeamSTEPPS™. Nine potential project sites were nominated with the selection of the final five based on a predetermined set of criteria: a will and desire for change, the commitment of key multi-disciplinary staff and data that supports a need to introduce a teamwork and communication programme. The five sites were:

A Metropolitan Emergency Department
This hospital is a provider of tertiary facilities and is now changing focus to providing generalist services in line with the catchment area's ageing population. The emergency department has a total of 28 beds.

A Metropolitan Inpatient Mental Health Facility
This site is an acute mental health facility that has 26 open beds and five high-dependency beds. More than 800 patients were admitted during the 2006-2007 financial year.

A Metropolitan General Medical Ward
This unit is a 30-bed general medical ward incorporating rheumatology, oncology, aged and extended care.

A Rural General Medical Ward
This hospital provides services to the far north of the State in addition to the local community. This site is a 42-bed general medical unit that incorporates five high-dependency beds.

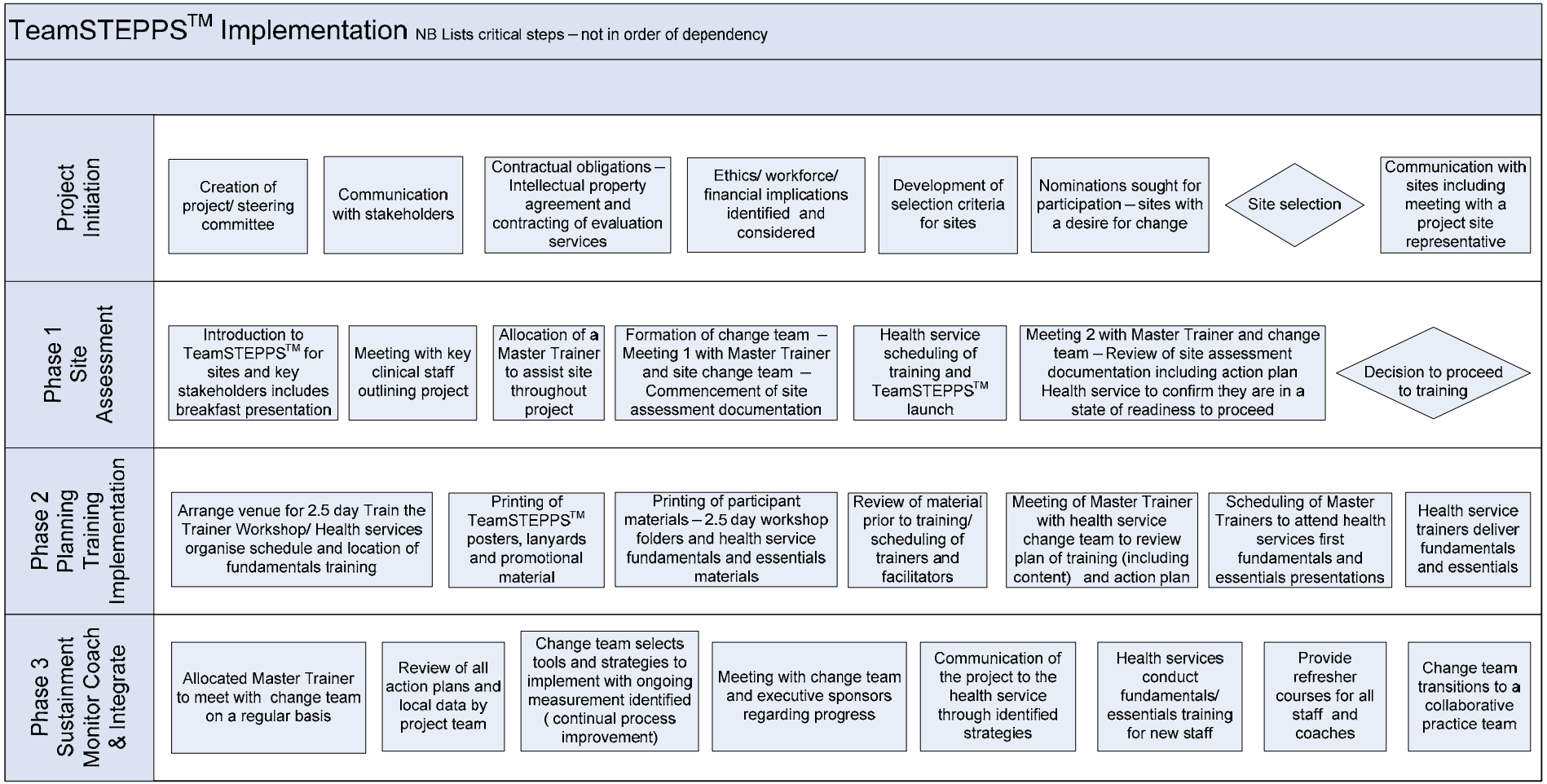
A Metropolitan Paediatric Anaesthesia Unit
This site provides paediatric anaesthesia and incorporates a short-stay ward of up to 36 hours and the Day of Surgery Admission (DOSA) that admits up to 80 percent of all children to the hospital.

3.2 The 3 Phases of Implementation

The TeamSTEPPS™ programme consists of 3 implementation phases (see Figure 1 on the following page). These phases are[2]:

Phase 1 – Site assessment
Phase 2 – Planning, training and implementation
Phase 3 – Sustainment: monitor, coach and integrate

Figure 1 – Three phases of implementation



3.3 Phase 1 – Site Assessment

This first phase assesses organisational readiness to determine if the climate is conducive to change and if there is support for the intervention. During this phase there is engagement of organisational leadership. The site forms a 'change team' comprising of clinical staff that conduct a review of local data and complete an internal site assessment. Based on the results of the site assessment a decision is made to continue to Phase 2.

Sites were supported by an allocated Master Trainer and regular meetings between the site and the project team. An implementation package was developed to assist project site representatives in understanding the project plan, process and materials. The package included a proposed schedule of training and checklist of key health service deliverables.

3.4 Phase 2 - Planning, training and implementation

Following site assessment, all sites declare their readiness to proceed to Phase 2. While the sites were at varying stages of preparation for the training, all had completed their site assessment documentation and were ready to proceed. In this phase, an action plan is developed by the change team that incorporates the plan for TeamSTEPPS™ training and implementation. Staff attend a two-and-a-half day 'Train the Trainer' workshop to prepare them for the role of a health service trainer in order to deliver a condensed form of the training to their colleagues. A ratio of 1:10 staff was recommended to attend this workshop to enable a sufficient number of staff to be trained. The role of the coach is introduced in this phase and staff who have received additional training in coaching are able to take on this role.

Training materials and marketing

TeamSTEPPS™ was developed by the US Department of Defense (DOD) Patient Safety Program in collaboration with the Agency for Healthcare Research and Quality (AHRQ). An agreement exists between AHRQ and the Minister for Health, South Australia, for the State to use the material under license. A national license will be negotiated to enable other States and Territories to use the TeamSTEPPS™ material.

The package of materials provided to participants of the two-and-a-half-day workshop included:

- TeamSTEPPS™ Multi Media Curriculum Kit CD/ DVD
- Pocket Guide[3]
- Folder of materials and the book *Our Iceberg is Melting – Changing and Succeeding Under Any Conditions* by John Kotter (2005)[4]

To assist health services in conducting fundamentals training under the 'train the trainer' model, a bound copy of the course slides was provided. Staff receiving fundamentals training also received pocket guides of the TeamSTEPPS™ principles and tools (see Table 2). During the project, TeamSTEPPS™ posters on the tools and strategies, lanyard cards on SBAR, I PASS the BATON pens, buttons and cups were distributed to raise awareness of TeamSTEPPS™ at the sites.

Table 2 - TeamSTEPPS™ Tools and Strategies[2]

Tools & Techniques	Explanation
Brief	Short planning session to assign roles; establish expectations; anticipate outcomes and contingencies
Huddle/Regroup/Muster	Ad hoc planning; reinforcing plans already in place and assessing need to adjust plan
Debrief	After action review to improve team effectiveness
STEP	**S**tatus of patient; **T**eam members; **E**nvironment; **P**rogress towards goal
I'M SAFE	**I**llness; **M**edications; **S**tress; **A**lcohol/ Drugs; **F**atigue; **E**ating and Elimination
Cross Monitoring	Watching each others back ; ensuring mistakes and oversights are caught quickly
Feedback	Should be: timely; respectful; specific; directed towards improvement; considerate
Advocacy/Assertion	Make an opening; state the concern; offer a solution; obtain an agreement
Task Assistance	Protection from work overload; offer and request assistance in the context of patient safety
Two-Challenge Rule	Assert two times; stop the line
CUS	I am **C**oncerned; I am **U**ncomfortable; This is a **S**afety issue – stop the line
Check-back	Ensures that information sent is understood by the receiver as intended
Handover	In transitions of care – I PASS the BATON [**I**ntroduction; **P**atient; **A**ssessment; **S**ituation; **S**afety Concerns; **B**ackground; **A**ctions; **T**iming; **O**wnership; **N**ext]
DESC Script	**D**escribe situation**; E**xpress what concerns are**; S**uggest alternatives**; C**onsequences – state in terms of team goals
Collaboration	Win Win Win – for patient, team members and team
SBAR	**S**ituation; **B**ackground; **A**ssessment; **R**esponse/Recommendation
Call Out	Strategy to communicate important information
Other eg. Walk-around	Senior member of staff asking "What is the plan of care?"

Delivery of Two-and-a-Half Day TeamSTEPPS™ Workshop

The first day of the programme involved teaching all the evidence-based teamwork competencies and how to use the tools and strategies that apply the principles of TeamSTEPPS™. All participants were asked to select a powerpoint presentation that they would like to teach back on the final day. Day two involved teaching staff the coaching component of the course and change management principles. The afternoon was dedicated to developing the action plans that were provided to the project sites during the site assessment phase.

Delivery of the Fundamentals and Essentials Courses

Under the 'train-the-trainer' model, staff who attended the two-and-a-half-day TeamSTEPPS™ workshop delivered a condensed form of the training to their colleagues. A four-hour course, known as Fundamentals, was delivered to all direct care staff on roster. A one-hour course known as Essentials was provided to staff that were not core staff to the site. The TeamSTEPPS™ DVD has a number of video vignettes based on different settings including: medical surgery/ critical care/ obstetrics and outpatient care so sites could select the vignettes and scenarios relevant to their area, with the exception of the mental health facility, which created its own clinical scenarios in SBAR format.

3.5 Phase 3 - Sustainment: monitor, coach and integrate

This phase involves integration of TeamSTEPPSTM into daily practice, monitoring of the interventions, evaluation and supporting the role of the coach who models and encourages teamwork behaviours. During the project, the sites were asked to nominate a high risk scenario on which to concentrate their TeamSTEPPSTM efforts. The sites nominated a primary scenario and also identified secondary scenarios to ensure additional coverage of the high risk areas, and these tended to be nursing/medical handover and change of shifts. Table 3 provides a summary of the scenarios and tools used at each site.

Table 3. High risk scenarios with description of tools at the five trial sites

Site	Primary Scenario (PS) Secondary Scenario (SS)	Achieved	Description of tools	Additional Areas
Rural General Medical Ward	Discharge from hospital to community (PS)	√	Use of whiteboards in patients' rooms for discharge planning and regular updates	Team leader round with GPs from 0800 – 0930
	Inter-hospital transfer [to lower level sites] (SS)	√	Use of SBAR in written discharge summary to nursing homes	
Metropolitan Emergency Department	Emergency Department to community (PS)	√	Use of SBAR in written medical discharge summaries	Integration of Brief, Huddle and Debrief into tri-daily multi-disciplinary handovers, also using SBAR format for communication of patient information
	Inter-hospital transfer (SS)	x	Use of SBAR handovers in transfer of patients from Emergency Department to the inpatient mental health facility	
	Emergency Department to Inpatient Mental Health Facility (SS)	√		
Metropolitan Inpatient Mental Health Facility	Nursing/ Medical change-of-shift (PS)	√	SBAR in all written and verbal handovers	Integration of Brief, Huddle and Debrief
	Discharge from hospital to community (SS)	√	Restructure of handover to include involvement of community teams, Introduction of patient journey boards	
Metropolitan Paediatric Anaesthesia Unit	Handover between teams/ points in the patient journey	√	SBAR at all points of the patient journey Use of briefs and whiteboards	Use of debriefs Introduction of executive walk-arounds
Metropolitan General Medical Ward	Nursing/ Medical change-of-shift (PS)	√	SBAR during handover	
	Discharge from hospital to community (SS)	√	SBAR during discharge planning meetings	
	Inter-hospital transfer (SS)			

3.5.1 Refresher training

Refreshing staff knowledge on the TeamSTEPPS™ competencies occurred during the project, however it was apparent that the designated cycle was intensive. It is recommended that refresher courses are undertaken every six to nine months until TeamSTEPPS™ has been embedded in local culture and at this point the refresher can transition as an annual competency.

4. Evaluation

The objectives in the evaluation were to:

- Evaluate the content and the process of the TeamSTEPPSTM course for its validity in handover in the Australian context
- Deliver and implement the TeamSTEPPSTM course (and evaluate these steps)
- Improve knowledge and attitudes related to communication and teamwork associated with the transfer of information and responsibility between clinicians about patient care (handover) at the selected sites
- Improve clinician performance (skills) related to communication and teamwork associated with the transfer of information and responsibility between clinicians about patient care (handover) at the selected sites
- Reduce incidents, adverse events, and harm that may be associated with poor transfer of information about patients and/or transfer of responsibility between clinicians.

The evaluation of TeamSTEPPS™ required a cohort of observers who had intrinsic knowledge of health care systems and processes. Observers also had to recognize and understand the importance and nuances of communication and teamwork in complex, evolving health care environments. The selected observers (nine in total) were all health professionals in allied health or nursing with varying levels of clinical and research expertise. The observation tools included an observation recording sheet, semi-structured interviews, reflective diaries and field notes.

The non observational evaluation of TeamSTEPPS™ incorporated:

- Documentation review;
- Focus groups;
- Knowledge/skills/attitudes [KSA] survey of participants attending the two-and-a-half day TeamSTEPPSTM workshop and Fundamentals training;
- Evaluation of the TeamSTEPPSTM training by those attending the two-and-a-half day TeamSTEPPSTM workshop and Fundamentals training;
- Survey of the patient safety culture conducted at each of the sites, and;
- Review of AIMS incident data.

The three surveys comprise the non-observational Phase 1 evaluation.

4.1Site-specific Observations and Findings

Rural General Medical Ward

During the site assessment period, the change team identified the discharge of patients to the community and to acute or long-term facilities as an area for improvement. Stability and adaptability of staff, including a culture of mentorship and support, were listed as strengths. Weaknesses related to communication with General Practitioners and factors relating to

discharge planning. During the nomination period, several changes or initiatives were occurring that could potentially impact on the implementation of TeamSTEPPS™ including change in services, accreditation review and regional restructure. There was a strong, positive response to training that resulted in premature spread across all nursing units prior to completing training and implementation of TeamSTEPPS™ tools in the project site.

The site introduced a number of structural changes as a flow-on from TeamSTEPPS™ implementation. The structure of handovers between nurses, allied health professionals and doctors has changed in relation to the patient care pathway. The tool "Know the Plan - Share the Plan' has facilitated this change. All staff members who use this tool believe it to be of great benefit. It is easily accessible through an information sheet placed at the front of each chart listing all relevant information about the patient's status and care. When a member of staff opens the patient's chart they can see exactly what stage the patient is at, what care is currently being given and what remains to be done from a patient-care standpoint. It has been reported that handovers have now become more efficient and nurses know exactly what is expected from them.

It was evident during the final observation that the goals of this site were ambitious in the time frames set. Efforts to undertake wide-spread delivery of education throughout the hospital absorbed the time that could otherwise be dedicated to the implementation of tools on the ward. While the aim for educating all staff in a rural centre is understandable, given the small site and frequent interactions between units, it did distract the team from implementation and embedding tools into the work flow. This provides a valuable insight for future sites and the need to carefully consider scope, goals, timeframes and resources. As a result of the final evaluation, this site has readjusted the action plan with an emphasis on implementation of the strategies within an achievable time fame, which has been supported by the hospital executive.

Metropolitan Emergency Department

The Emergency Department had a planned, staged approach to the implementation of TeamSTEPPS™. While the change team aimed to eventually incorporate all TeamSTEPPS™ techniques into their department, they decided to make incremental changes and incorporate single TeamSTEPPS™ techniques at a time, embedding them in practice before trying to incorporate another technique.

At the time of the final evaluation, the TeamSTEPPS™ techniques used, in order of implementation, were: using SBAR format in handovers, wearing of team leader and staff coordinator badges, incorporating huddles within the nurses shift, using debriefs during shifts, increasing the number of multi-disciplinary handovers and discharge letters written in SBAR format.

There were a number of barriers to the implementation of TeamSTEPPS™ in the emergency department, including the high turnover of staff, mainly due to trainee staff rotation, the time involved in training staff and the availability of staff, especially medical staff to attend the training. A multi-disciplinary change team to support the action plan and training schedule, and creativity in delivering training were two methods used to overcome the identified barriers.

Over the five-month implementation of TeamSTEPPS™ staff awareness and acceptance of TeamSTEPPS™ has increased, with staff identifying the importance of effective communication and teamwork. During this period there were significant changes in the quality and frequency of information exchange, ensuring staff were kept up to date on

patient status. By the final evaluation, many of the TeamSTEPPS™ techniques were embedded into practice.

Metropolitan Inpatient Mental Health Facility

This site was able to harness high-level support for the project including executive, medical and nursing leaders. The staff readily identified opportunities for improvement including the rate of ongoing seclusion, the transfer of information during handover, discharge planning, incidents not reported and staff complaints.

The allocation of coaches occurred early during the project and enabled one-on-one TeamSTEPPS™ education, support and guidance to be provided to all staff. As this was the first introduction of TeamSTEPPS™ in a mental health facility, this site developed mental health-specific materials to assist in education.

Clinical outcomes included reduced rates of seclusion to a third of the rate in a three-month period, when compared with the same period one year earlier. There are anecdotal reports of improved patient flow from the Emergency Department (another TeamSTEPPS™ site) associated with a decrease in the average length of stay in the unit – however, this will need to be reviewed over time before any conclusive statement can be made.

The barriers to implementation included the use of agency staff by the unit. It was not possible to train agency staff, however this was addressed by providing an orientation sheet to the TeamSTEPPS™ principles and allocating a coach to all agency staff for the day.

Over the period of implementation and assessments, there is positive evidence that TeamSTEPPS™ was successful at this site. The changes seen could be attributed to the change team, the majority of the staff members' attitude towards improving the quality of clinical care given to the patients and the drive to facilitate good teamwork in the unit. Core staff embedded the principles and techniques in their day-to-day activities. Through observation of ward meetings and informal communication methods of communication both verbal and written, it is clear that TeamSTEPPS™ is integrated into their daily process. Noticeably, the team is satisfied with the results and have felt the tangible outcomes of what has been achieved.

Metropolitan Paediatric Anaesthesia Unit

The primary focus of TeamSTEPPS™ implementation at this site related to the handover of information between various teams within the unit. Areas for improvement were identified as the transfer of information between points in the patient journey in a consistent manner, communication in critical situations and medication error reduction. Adapting a more structured and systematic way of handover reduces the chance of missing important patient information, leading to a safer and more efficient health care delivery.

Over the course of this project, there were significant changes in the behaviour of health care staff, as well as their attitude and perceptions of the programme. As the TeamSTEPPS™ principles became more embedded in the system, resistance reduced and there was a positive atmosphere about change and quality improvement.

As a result of the TeamSTEPPS™ implementation, the following changes were observed:

- Verbal handover using the SBAR/ISBAR format, complemented by handover sheets, led to a more organised and streamlined way of transferring patient information from one staff member to another. Generally, the quality of communication improved – it was complete, concise and efficient.

- Staff are aware of their responsibility to communicate clearly with the rest of the health care team.
- Well-defined roles and responsibilities, as a result of the regular briefing, reduced the ambiguity and uncertainties regarding tasks that need to be carried out by every member of the department.
- Setting a schedule and maintaining the regularity of contact during briefing sessions allows up-to-date exchange of information, which is essential in all levels of health care delivery.

Metropolitan General Medical Ward

After five months of TeamSTEPPS™ implementation, a noticeable improvement in communication, especially during handover, was observed. At present, handovers are more concise, structured and efficient. A major issue prior to this initiative was the lack of handover by doctors to nurses. At present, doctors give handover to team leaders after ward rounds. They, in turn, relay the information to nurses. Another significant change was the use of the whiteboard for the purpose of updating patient-specific information. Volunteers are now more aware of the patient's status because of daily handover from nurses. The majority of staff expressed satisfaction with the changes that have occurred as a result of this initiative.

Whilst TeamSTEPPS™ has generally been effective in improving the quality of communication, there were occasions when the SBAR format was not completely followed. Medical staff required prompting to follow the agreed SBAR format in the discharge planning meetings. This also occurred with nursing staff during their shift handover. There remains staff resistance to the project. The TeamSTEPPS™ project triggered significant changes in the manner and quality of communication. The enhanced exchange of information that is occurring between doctors and allied health especially during discharge planning has resulted in an improvement to their working relationship.

4.2 Combined Results from Observational and Non Observational Evaluation

Overview of Findings across the Five Sites

The results below are generalised findings from across the five sites:

- Across the sites, teamwork (as measured by the Team Assessment Questionnaire) increased significantly post-implementation, on average by about 9 percent.
- Patient safety culture (as measured by the hospital Patient Safety Culture questionnaire) improved, although there were different patterns of improvement between different sites. Overall, the post-implementation score was almost 4 percent greater than the pre-implementation. Scores for these Australian hospitals were generally lower than recent measurements for US facilities.
- Knowledge, skills and attitudes (KSA) towards teamwork and communication improved by a small, though statistically significant amount (2 percent).
- For all three outcomes (Team Assessment, Culture and KSA) the largest increases were seen at sites that had lower pre-implementation values.
- The results for the training evaluation for both the workshop and health service fundamentals courses were positive.
- There were large reductions in the numbers of incident reports of certain types, particularly falls with an overall reduction of 40 percent, documentation with a 52 percent reduction, and aggression incidents had a 31 percent decrease.

- The majority of vignettes (85 percent) were accepted as suitable for use in Australia as a training tool. The suggested changes are minor.
- 92 percent of the scenarios were recommended as suitable for use in the Australian context.

A finding from both observational and non-observational evaluations related to staff perspectives of TeamSTEPPS™. Most staff from participating sites reported that they valued training provided for TeamSTEPPS™ and believed that TeamSTEPPS™ could, and did, positively influence teamwork and communication at their health service (see Table 4). Staff reported that implementation of TeamSTEPPS™ had improved quality of communication, quality of handover and quality of clinical care. The majority of participants felt that TeamSTEPPS™ could be easily adapted to an Australian health care setting. Many commented that the framework was "common sense" and they had been exposed to it before. This finding has been supported by improvements, albeit small, in communication and teamwork knowledge, skills and attitudes post training.

One of the key elements of success of this initiative was the 'bottom up implementation approach. This approach also provided the opportunity for each site to identify local issues and tailor the TeamSTEPPS™ implementation accordingly. A further benefit was providing staff at participating sites with opportunities to develop structures and processes to suit their local needs. This facilitated staff 'buy-in' for this project in the initial stages. However, it must be noted that this was not the case in all sites at all times. In some instances, certain disciplines did not have adequate buy-in, which led to barriers in implementation of TeamSTEPPS™. Additionally, the shortness of the implementation period threatened the bottom-up approach and clinician buy-in.

Implementation and Uptake of TeamSTEPPS™

Uptake and implementation of TeamSTEPPS™ varied across all five sites. This is not a surprising finding as each site was unique in several aspects. These include models of service delivery, geographical locations, structures and processes of care, staffing complement, skills levels of staff and resources available. This meant implementation of TeamSTEPPS™ and its techniques was undertaken in a variable manner. All these factors may have played an influencing role in variable outcomes as identified in observational and non-observational evaluations (see Tables 4 and 5).

Sustainability and spread of TeamSTEPPS™ was an integral issue across all five sites. This important finding was identified from both observational and non-observational evaluations. While some TeamSTEPPS™ techniques such as SBAR, which were introduced early on during the implementation process, were likely to be integrated into routine practice, other techniques introduced in later stages had little chance of being integrated. In addition, the high turnover of staff, staff attitudes to TeamSTEPPS™ (such as lack of buy-in) and increasing workload were considered to be significant barriers for implementation and sustainability of TeamSTEPPS™. Staff recognised that the current implementation phase (approximately five months) was too limited, as it did not reflect timeframes required for complex behaviour change.

Table 4 - General qualitative findings across all five sites

Site	Training		Implementation		Outcomes	Culture	KSA
	+ve	-ve	+ve	-ve			
Summary of qualitative findings across sites	Despite time constraints, training positively received. Training materials generally applicable in Australia.	Difficulties in training all staff, especially those based off site and agency staff. Staff turnover impacting on availability of trainers and proportion of staff trained.	Staff empowerment and being brought together. Working as a multi-disciplinary change team; clinicians and change team members were engaged with TeamSTEPPS.	Difficulties: short time period; not being an 'island'; working with the action plan; lack of medical staff buy-in at some sites.	Recognition for teamwork and communication across multi-disciplinary team. Recognition on the value of TeamSTEPPS as a framework. Identification of local drives for change (including barriers and incentives).	TeamSTEPPS tools use resulted in flattening hierarchies; better communication. Improving the profile of patient safety.	Similarity in communication styles between healthcare professionals; improved handover.

Table 5 - An overview of implementation across all five sites

Site	Training +ve	Training -ve	Implementation +ve	Implementation -ve	Outcomes	Culture	KSA
Inpatient Mental Health Facility	Buy-in from all stakeholders, multi-disciplinary teamwork, regular opportunities for refreshers.	Large numbers of agency staff.	Targeted, step-by-step approach; innovative implementation strategies; regular evaluation and update; professional champions.	Issues with sustainability over long term due to the current model of reliance on a dedicated resource to drive implementation	↑ quality of communication ↑ quality of clinical care ↑ process of communication and team work ↑ patient outcomes ↓Decrease seclusion and absconding rates	↑ by 11.5% (130.3 ± 23.5 pre; 145.3 ± 20.6 post)	↑ by 6.8% (79.1 ± 12.0 pre; 84.5 ± 12.6 post)
Metropolitan Emergency Department	Multi-disciplinary team; modified training to suit local needs and requirements; large number of staff trained.	Training undertaken over different days; initial lack of buy-in from some staff.	Targeted, step-by-step approach; regular evaluation and update; professional champions.	High turn over of staff; availability of staff to undergo training; maintaining health service trainers.	↑ multi-disciplinary handovers using SBAR format; discharge letters in SBAR format ↑ role clarity and identification ↓ in time taken from decision of intervention to notification of nursing staff	↑ by 5.4% (133.4 ± 14.8 pre; 140.6 ± 15.2 post)	↑ by 3.2% (83.3 ± 8.1 pre; 86.0 ± 9.4 post)
Rural Medical Unit	Modified training to suit local needs and requirements.	Involvement of entire health service; lack of timely training of GPs.	Targeted step-by-step approach; Multiple innovative implementation strategies.	High turn over of staff; heavy patient load; maintaining health service trainers.	↑ handovers using SBAR format; use of SBAR during muster and updating medical staff ↑communication about patient care	↑ by 6.2% (138.0 ± 21.7 pre; 146.5 ± 19.7 post)	↑ by 1.3% (83.5± 8.6 pre; 84.5 ± 9.3 post)
Metropolitan Medical Unit	Multi-disciplinary team; regular opportunities for refreshers; inclusion of volunteers.	Large numbers of agency staff; staff turnover; lack of buy-in from some staff.	Targeted step by-step approach; multiple innovative implementation strategies; individual communication strategies.	High turn over of staff; heavy implementation workload on a select few; lack of buy-in from some professional groups	↑ handovers using SBAR format ↑communication about patient care between multi-disciplinary health professionals and volunteers; regular use of SBAR	↓ by 2.0% (144.5± 18.5 pre; 141.6 ± 16.0 post)	↓ by 0.7% (85.8 ± 9.4 pre; 85.2 ± 10.9 post)
Metropolitan Paediatric Anaesthesia	Multi-disciplinary team; innovative training methods to suit local requirements; regular opportunities for refreshers.	Mixed responses on the use of DVD for training; new staff and the need for training.	Targeted step-by-step approach; multiple innovative implementation strategies; professional champions	Professional indifference from some staff; some initiatives seen as redundant.	↑ quality of communication ↑ awareness to communicate ↑ role clarity and responsibility ↑ process of communication ↓ Reduction in staff overtime	↑ by 1.0% (146.1 ± 18.7 pre; 147.5 ± 18.3 post)	↑ by 1.9% (86.4 ± 9.3 pre; 88.1 ± 9.4 post)

Change Management

During the project, the approach was to closely align with the established TeamSTEPPS™ process and change management theory. It became clear during the project that sites influenced the degree of their success by considering how change management can impact their implementation.

The following discussion highlights the experience of the inpatient mental health facility that aligned itself to the change management process and achieved significant results over five months. In the area of staff engagement, leadership, readiness for improvement and compatibility, the unit was able to engage the majority of its staff in the programme, communication of the initiative occurred regularly through meetings, newsletters and visible promotion (for example use of posters, display of data and goals for improvement). The support of the executive sponsor was evident and included participation in periodic change team meetings. The visible involvement from senior clinical sponsors from both medical and nursing modelled the new behaviours, assisted in driving the change initiative, and contributed to bridging historical divisions that ultimately improved communication in multi-disciplinary meetings.

In addition, there was an underlying will to achieve, with recognition that clinical processes needed to change and TeamSTEPPS™ afforded an opportunity to do this with the patient at the forefront of the changes. Changing from a closed unit to an open unit and a reduction in seclusion all occurred during the project. This site had an established data collection method which assisted in demonstrating evidence of improvement. The adoption of processes into routine practice is critical for sustainability and this has been achieved through changing forms into SBAR, embedding a structured communication process for handover and the introduction of a whiteboard to assist in the discharge planning process.

4.3 Feedback from relevant stakeholders

The views of a range of stakeholders were canvassed during qualitative evaluation, including: project site representatives, executive sponsors, clinical sponsors, staff working at sites (including change team member and non-change team members and involving multi-disciplinary groups (medical, allied health, nursing, administrative support, volunteers) at a range of seniorities), and members of the project team. Focus groups and semi-structured interviews lasting between 20 and 80 minutes were undertaken.

In focus group discussions, improvement to both communication and handover was one of the clearest benefits. Although different sites had different strategies, most sites reported that post-TeamSTEPPS™, decisions were made more quickly and did not involve irrelevant people, saving time and, by extension, money. They also reported that improvements between nurses and doctors were noted, partly because they were both using similar styles of communication.

In the observational evaluation comprising of reflective diaries and interviews, staff regularly commented on the improvement in the quality of communication as a result of TeamSTEPPS™ implementation. Staff commented that TeamSTEPPS™ had provided a framework that, when put in practice, resulted in improved communications. Several constructs of ‘quality’ of communication were reported: these included ‘clear’, ‘focused’, ‘efficient’, ‘effective’, ‘streamlined’, ‘structured’ and ‘concise’. These findings indicate that TeamSTEPPS™ implementation has resulted in improving communication between staff at crucial points of a patient’s journey, including at handover.

Staff also discussed communication breakdown and information transfer. They recognised working in complex environments had the potential for inadequate communication and teamwork. Implementation of TeamSTEPPS™ has addressed these gaps by improving awareness and ensuring consistency.

Another objective of TeamSTEPPS™ was to improve teamwork in settings where multi-disciplinary staff work in complex and at times stressful environments. Staff commented that TeamSTEPPS™ had created awareness of each other's roles and responsibilities, empowered staff to seek clarifications and generally created an atmosphere of peer support.

5. Summary of recommendations

These recommendations relate to programme enhancements as the evaluation concluded that TeamSTEPPS™ can be successfully implemented in Australia and are therefore supporting initiatives. In addition, the recommendations relate to supporting the sustainability and spread of TeamSTEPPS™:

It is recommended that the Australian Commission on Safety and Quality in Health:

- negotiate with national colleges, universities and professional organisations for inclusion of TeamSTEPPS™ in their existing training programme, including the feasibility of incorporating TeamSTEPPS™ into existing simulation training programmes
- support ongoing learning tools that support efficiency in training and assist in promoting flexibility in the training methods, taking into consideration a web-based interactive refresher programme and evaluation that may support different methods of education delivery to meet the needs of different clinical contexts
- adopt the principles of TeamSTEPPS™ into other clinical handover programme areas and promote the TeamSTEPPS™ training through its website
- consider funding the revision of the TeamSTEPPS™ vignettes

It is recommended that the South Australian Department of Health:

- support a programme for the training of TeamSTEPPS™ trainers, with interstate trainers invited to receive the training in South Australia.
- develop a support network that will provide mentoring and refresher training to interstate trainers
- develop capacity in teaching safety and quality measurement that can then be incorporated into future TeamSTEPPS™ workshops
- develop a data entry form and analysis tool to assist sites to directly manage their own data collection and analysis process that assists with site assessment and cultural evaluation
- develop a model to support a state-wide implementation and sustainment plan for utilising methods such as TeamSTEPPS™ for improving clinical handover
- request permission from the US Department of Defense and the Agency for Health Care Research and Quality for minor changes to the scenarios to ensure their compatibility to the Australian health care setting and to promote their use in training and refresher courses
- explore a model for implementation in rural areas that will facilitate the involvement of all members of the health care team in conjunction with Country Health SA
- seek methods to 'hard wire' the SBAR format into existing structures (for example discharge summary)

It is recommended the South Australian Safety and Quality Consumer and Community Advisory Committee:

- explore the role of the patient in 'Know the Plan - Share the Plan' and the role of the patient and consumer as part of the health care team
- explore the issues of participation in relation to both TeamSTEPPSTM and safety and quality projects in general, in consultation with health services and community organisations in order to develop recommendations for the South Australian Safety and Quality Council on Health Care to consider

6. References

[1] Australian Medical Association. Safe Handover: Safe Patients. Guidance on clinical handover for clinicians and managers. 2006.

[2] TeamSTEPPS™ Multimedia Resource Kit. [TeamSTEPPS™: Team Strategies & Tools to Enhance Performance and Patient Safety; developed by the Department of Defense and published by the Agency for Healthcare Research and Quality.] AHRQ Publication No. 06-0020-3. Rockville (MD): Agency for Healthcare Research and Quality; September 2006

[3] Team STEPPS™ Pocket Guide. [Team Strategies & Tools to Enhance Performance and Patient Safety; developed by the Department of Defense and published by the Agency for Healthcare Research and Quality.] AHRQ Publication No. 06-0020-2. Rockville (MD): Agency for Healthcare Research and Quality; June 2006.

[4] Kotter, J & Rathberger, Our Iceberg is Melting – Changing and Succeeding Under Any Conditions. New York: St Martin's Press; 2005.