



Agency for Clinical Evaluation  
**ED Quality Framework & Evaluation**

**Final Evaluation Report**

17 November 2014

## TABLE OF CONTENTS

	List of Abbreviations .....	8
	Statistical Analysis .....	9
<b>1</b>	<b>Executive Summary .....</b>	<b>10</b>
<b>2</b>	<b>Background .....</b>	<b>15</b>
	2.1 The Emergency Care Institute of NSW .....	15
	2.2 The ED Quality Framework project .....	15
	2.3 Hospitals participating in the project .....	16
	2.4 The rationale for evaluation .....	17
	2.5 The purpose of this report .....	17
	2.6 The Evaluation audience .....	17
	2.7 The structure of this report .....	18
<b>3</b>	<b>Approach to Evaluation .....</b>	<b>19</b>
	3.1 Key evaluation questions .....	19
	3.1.1 The appropriateness of the ed quality framework project .....	19
	3.1.2 The efficiency of the ED quality Framework project .....	19
	3.1.3 The effectiveness of the ED quality framework project .....	19
	3.2 Evaluation methodology .....	20
	3.2.1 Operational definition of the evaluation cohort .....	20
	3.2.2 Methods of population comparison .....	20
	3.3 Key evaluation components .....	21
	3.3.1 Review of background documents .....	21
	3.3.2 Development of a Program Logic for evaluation .....	22
	3.3.3 Targeted stakeholder discussions .....	23
	3.3.4 Survey of ED staff and Quality support officers .....	24
	3.4 The profile of survey participants .....	24
<b>4</b>	<b>Project appropriateness .....</b>	<b>27</b>
	4.1 Alignment with current clinical priorities and funding arrangements .....	27
	4.1.1 Quality standards for emergency departments .....	27
	4.1.2 Rising demand for ED services .....	27
	4.1.3 National Emergency Access Targets .....	29
	4.2 Activities implemented to improve ED quality and safety .....	30

4.3	Acceptability of the Project to key stakeholders .....	32
4.4	Overall appropriateness of the Project .....	34
<b>5</b>	<b>Project efficiency .....</b>	<b>35</b>
5.1	Key processes undertaken to implement projects .....	35
5.1.1	Common approaches to implementation .....	35
5.1.2	Structure of quality teams .....	37
5.1.3	Methods of staff engagement .....	38
5.2	Enablers and/or barriers to project implementation .....	38
5.2.1	Information reported by Quality Teams .....	41
5.3	Opportunities to improve project implementation .....	42
5.4	Overall efficiency of the Project .....	43
<b>6</b>	<b>The effectiveness of specific ED quality activities .....</b>	<b>45</b>
6.1	ED improvements in standardised death reviews .....	45
6.1.1	Background .....	45
6.1.2	Selected case examples .....	46
6.1.3	Summary of improvements in death reviews .....	50
6.2	ED improvements in appropriate ordering of tests .....	50
6.2.1	Background .....	50
6.2.2	Selected case examples .....	53
6.2.3	Summary of improvements in appropriate test ordering .....	54
6.3	ED improvements in meeting performance targets .....	55
6.3.1	Selected case examples .....	55
6.3.2	Summary of improvements in ED performance targets .....	56
6.4	ED improvements in management of sepsis .....	57
6.4.1	Selected case examples .....	57
6.4.2	Summary of improvements in sepsis management .....	60
6.5	ED improvements in pain management .....	60
6.5.1	Selected case examples .....	60
6.5.2	Summary of improvements in pain management .....	61
6.6	ED improvements in clinical documentation .....	62
6.6.1	Selected case examples .....	62
6.6.2	Summary of improvements in clinical documentation .....	63
6.7	ED improvements in diagnostic turn-around times .....	64
6.7.1	Selected case example .....	64

6.7.2	Summary of improvements in diagnostic turn-around times.....	65
6.8	ED improvements in staff development and training .....	65
6.8.1	Selected case examples.....	65
6.8.2	Summary of improvements in staff training and development.....	66
6.9	ED improvements in administration.....	67
6.9.1	Selected case examples.....	67
6.9.2	Summary of improvements in clinical administration.....	68
6.10	Overall summary of specific ED quality and safety activities.....	68
<b>7</b>	<b>The effectiveness of hospital level Projects.....</b>	<b>70</b>
7.1	Role of the QSO .....	70
7.1.1	Data reported by participating hospitals .....	70
7.1.2	Perceptions of the Quality Team .....	70
7.1.3	Perceptions of QSO's .....	71
7.1.4	Perceptions of other staff working in the ED.....	71
7.2	Identification of local priorities .....	74
7.2.1	Data reported by participating hospitals .....	74
7.2.2	Perceptions of the quality team .....	74
7.2.3	Perceptions of QSOs.....	77
7.2.4	Perceptions of other staff working in the ED.....	77
7.3	Information shared to promote quality improvements.....	79
7.3.1	Data reported by participating hospitals .....	79
7.3.2	Perceptions of Quality Team members .....	83
7.3.3	Perceptions of QSOs.....	83
7.3.4	Perceptions of other staff working in the ED.....	84
7.4	Levels of staff engagement .....	86
7.4.1	Data from participating hospitals .....	86
7.4.2	Perceptions of Quality Team members .....	86
7.4.3	Perceptions of QSOs.....	87
7.4.4	Perceptions of other staff working in the ED.....	88
7.5	The impact of quality and safety activities .....	88
7.6	Hospital level improvements in ED Quality Standards .....	92
7.6.1	Perceptions of Quality Team members .....	93
7.6.2	Perceptions of QSOs.....	93
7.6.3	Perceptions of other staff working in the ED.....	93

7.7	Factors promoting future sustainability .....	97
7.8	Overall summary of the effectiveness of the Project .....	98
7.8.1	Summary of outcomes.....	98
7.8.2	Key drivers of improvement.....	99
8	Summary of evaluation findings .....	103
Appendix 1	Program logic.....	104
Appendix 2	Stakeholder discussion guide .....	105
Appendix 3	Online survey for ED staff .....	107
Appendix 4	ED Quality Standards .....	110

### Index of Figures

Figure 3-1:	Professional occupation of respondents (n=102) .....	25
Figure 3-2:	Years working in ED.....	25
Figure 3-3:	Awareness of implementation of ED Quality Framework Project in ED .....	26
Figure 3-4:	Member of Quality Team.....	26
Figure 4-1:	Emergency department presentations per 1,000 persons, public hospital emergency departments, 2008–09 to 2012–13.....	28
Figure 4-2:	Emergency department presentations per 1,000 persons, public hospital emergency departments, states and territories, 2008–2009 to 2012–2013 .....	29
Figure 4-3:	Average growth in ED presentations per 1,000 persons – 2008-2009 to 2012-2013 by state/territory.....	29
Figure 7-1:	The QSO has provided more opportunities to focus upon quality improvement .....	72
Figure 7-2:	The QSO has enabled the ED to document and monitor its own quality activities .....	72
Figure 7-3:	The QSO has enhanced staff preparedness to work together to improve services.....	72
Figure 7-4:	The QSO has made a positive difference to quality improvement activities.....	73
Figure 7-5:	The QSO has been a good use of ED resources.....	73
Figure 7-6:	The QSO role would be worthwhile continuing in the future.....	73

Figure 7-7:	Percent of staff aware of their ED Quality Framework Project .....	77
Figure 7-8:	Percent of staff with sufficient information about the Project.....	78
Figure 7-9:	Percent of staff aware of ED Quality Standards .....	78
Figure 7-10:	Percent of staff aware of their ED Quality Team .....	78
Figure 7-11:	Percent of staff aware of their ED quality improvement priorities.....	79
Figure 7-12:	Percent of staff aware of more frequent clinical audits.....	84
Figure 7-13:	Percent of staff aware of more frequent incident reviews.....	84
Figure 7-14:	Percent of staff aware of more frequent quality projects .....	85
Figure 7-15:	Percent of staff aware of more regular morbidity/mortality reviews .....	85
Figure 7-16:	Percent of staff aware of more appropriate ordering of imaging .....	86
Figure 7-17:	Percent of staff aware of more appropriate ordering of pathology .....	86
Figure 7-18:	Percentage of staff regularly contributing to ED quality activities.....	88
Figure 7-19:	The ED Quality Project is likely to drive continuous improvement .....	95
Figure 7-20:	The Quality Project is likely to improve the quality of ED services .....	96
Figure 7-21:	The Quality Project is likely to increase the consistency of ED services across NSW.....	96
Figure 7-22:	The ED Quality Project is likely to protect the public from harm.....	96
Figure 7-23:	Predicted improvement in ED Quality Standards (QSO 9 months).....	100
Figure 7-24:	Predicted improvement in ED Quality Standards (QSO 12 months).....	101
Figure 7-25:	Predicted improvement in ED Quality Standards (QSO 18 months).....	101

**Index of Tables**

Table 2-1	ED Quality Framework Project – timeline for QSO appointments by site.....	16
Table 3-1	Summary of ED quality and safety activities selected for evaluation .....	21
Table 4-1:	Hospital activities classified according to ED Quality Standard domains .....	31

Table 5-1:	Implementation Activities.....	36
Table 5-2	Reported enablers and barriers to Project implementation .....	40
Table 6-1	Specific Measures for Pathology Tests (STOP).....	51
Table 6-2	Specific Measures for Medical Imaging Tests (STOP).....	52
Table 6-3	Westmead Hospital Sepsis Project, Objectives and Outcomes .....	59
Table 7-1:	Priorities identified in site quality improvement plans .....	76
Table 7-2:	Methods of information collection and dissemination .....	80
Table 7-3:	Comparison of ED Quality Standards prior to and following Project implementation at 23 participating hospital EDs.....	90

## Disclaimer

Please note that, in accordance with our Company's policy, we are obliged to advise that neither the Company nor any employee nor sub-contractor undertakes responsibility in any way whatsoever to any person or organisation (other than Agency for Clinical Innovation) in respect of information set out in this report, including any errors or omissions therein, arising through negligence or otherwise however caused.

## List of Abbreviations

ABF	Activity Based Funding
ACEM	Australasian College for Emergency Medicine
ACI	Agency for Clinical Innovation
CE	Chief Executive
CEC	Clinical Excellence Commission
DCG	Director of Clinical Governance
ECI	Emergency Care Institute
ED	Emergency Department
ICD	International Classification of Disease
IFEM	International Federation of Emergency Medicine
IOM	Institute of Medicine
LHD	Local Health District
M&M	Mortality and Morbidity
MoH	Ministry of Health
NEAT	National Emergency Access Target
NPA	National Partnership Agreement
NSW	New South Wales
QI	Quality Improvement
QSO	Quality Support Officer
STOP	Sensible Test Ordering Project

## Statistical Analysis

### Presentation of graphs

Unless otherwise specified, all graphs presented in this report depict the percentage of survey respondents endorsing individual (or aggregated) responses to specific survey items. Percentages are presented together with 95% Confidence Intervals (CI), calculated against a Binomial distribution (appropriate for evaluation of rates expressed as percentages that range above zero).

### Presentation of change scores

Differences in self-assessed compliance with ED Quality Standards reported by participating hospitals, prior to and following implementation of quality and safety activities, was analysed using a paired Wilcoxon Signed Ranks test (appropriate for the small sample size  $n=14$ ). Identification of significant factors influencing improvement in compliance with ED Quality Standards was explored using Best Subsets Regression (appropriate for unknown inter-relationships), and subsequently confirmed via Generalised Linear Modelling (deemed appropriate given the number of identified predictors and the obtained sample size).

## 1 Executive Summary

### Background to the Project

EDs across the world are facing increasing demand for services and financial pressures to maximise patient throughput. In this context, limited time and resources have been available to support pro-active continuous quality improvement activities. Accordingly, the NSW Emergency Care Institute (ECI) developed a Project to encourage self-assessment against a number of nationally endorsed Quality Standards, together with materials to assist EDs in identifying areas for ongoing continuous quality improvement, and encourage a wide range of pro-active activities to improve ED Quality Standards. NSW Health subsequently funded a series of part time, temporary Quality and Safety Officer (QSO) positions to facilitate the implementation of this Project across 23 public hospitals.

### Evaluation methods

An independent evaluation was commissioned to examine data reported to the ECI by public hospitals who participated in the Project. Evaluation activities focused upon the extent to which the Project developed by the ECI was appropriate to the needs of public hospital EDs, was able to be implemented in a manner that minimised additional burden to existing ED staff workloads, and resulted in material improvements to the quality and safety of ED service delivery across NSW.

Methods of evaluation primarily focused upon project reports to the ECI by hospitals participating in the Project. These results were supplemented with follow-up interviews with 12 (52% of) participating sites, together with an ED staff survey distributed to all sites involved in the Project. A total of 102 responses to the survey were received, from a range of staff across the majority of participating hospitals. Demographic characteristics of respondents were congruent with the typical staff profile of a public hospital ED in NSW – and were thus considered to be representative for the purposes of evaluation reporting.

Analysis of available data focused upon the calculation of significant differences in staff perceptions about the implementation and impact of the Project (against a Binomial distribution – appropriate for percentage comparisons). Differences in self-assessed compliance with ED Quality Standards reported by participating hospitals, prior to and following implementation of quality and safety activities, was analysed using a paired Wilcoxon Signed Ranks test (appropriate for the small sample size  $n=14$ ). Identification of significant factors influencing improvement in compliance with ED Quality Standards was explored using Best Subsets Regression (appropriate for unknown inter-relationships), and subsequently confirmed via Generalised Linear Modelling (deemed appropriate given the number of identified predictors and the obtained sample size).

### The appropriateness of Project design

Available evidence indicates that the Project was appropriately designed and supported. QSOs were welcomed as a valuable addition to the ED team who were employed to assist in the development of a quality culture or a “new” approach in the short-term. In the longer term the overall aim is that quality would become “core” business assimilated into the culture of the ED rather than continuing as a standalone practice dependent on the existence of a particular position. The standards were considered to have credibility given that they were

based upon the ACEM policy. The self-assessment tool was considered to be a useful method of assessing need and measuring the success of quality outcomes. The Project was reported to result in an improved awareness and focus upon quality and safety issues amongst staff and willingness to engage in activities to promote compliance with the ED Quality Standards.

### **The efficiency of Project implementation**

Evidence obtained through project reports, interviews with Quality Team members and feedback from other staff working in the ED suggests efficient implementation of the Project at the majority of the participating sites. Each of the participating hospitals commenced the Project by recruiting a QSO, establishing a multi-disciplinary quality team (or using an existing forum), performing the initial self-assessment of their site against the Standards and developing a Quality Improvement Plan. These plans incorporated the two mandatory projects and any local projects prioritised according to gaps identified in the Standards.

The most significant factors associated with successful Project outcomes were reported to include; active and ongoing support from senior ED staff, a dedicated QSO with the appropriate mix of skills and experience to engage with ED staff, and the emergence or appointment of clinical project champions to support individual quality and safety activities undertaken in each ED.

The most significant barriers to Project implementation were reported to include; difficulties accessing data (particularly for the mandatory STOP project), time limitations of the part-time QSO position, an inability to get relevant people together at the same time due to the 24/7 shift work in an ED, and uncontained scope creep which placed additional burden on available QSO time.

Major suggestions to improve Project implementation in any new setting focused upon clearly defining the scope of the QSO role, clarifying expectations at the outset, and ensuring QSO time is protected. The key issue here is the need for quality to be embedded as part of core ED business and for all staff to be able to dedicate time to quality activities. Accordingly, strategies to promote broader staff awareness of quality and safety issues and embed ongoing improvement activities into routine work practices were also considered important. The ability to dedicate time to quality improvement within the ED and integrating these activities within the broader hospital quality framework was considered necessary in order to maintain outcomes achieved through the Project. It is up to LHDs how this is resourced.

### **The effectiveness of Project activities**

Project funding was contingent upon undertaking two mandatory initiatives, in addition to a range of other locally determined quality and safety activities. The majority of hospitals implemented the two mandatory initiatives focusing upon (a) improving the frequency and format of death reviews, and (b) enhancing the appropriateness of diagnostic test ordering. At the conclusion of the Project funding period many of the participating sites have advanced towards best practice for M&M meetings (including death review). In particular, M&M meetings have become:

- Routine, occurring at least monthly;

- Formalised, with a standing agenda and/or structured guidelines for case review;
- Multidisciplinary, with broad attendance and involvement of all team members; and
- Integrated, as results are actively communicated to all staff and issues requiring attention are incorporated into other quality and safety activities occurring within the ED.

Better practice in the ordering of appropriate diagnostic tests has also been achieved. As a result:

- Diagnostic data is being more routinely monitored;
- ED staff are more aware of appropriate test ordering;
- The number of 'inappropriate' test orders are reducing; and
- Health services are achieving tangible cost savings.

In addition, participating hospitals have implemented a range of other targeted quality and safety activities resulting in:

- Improvement in performance against NEAT targets;
- Improved provision of care for patient cohorts presenting to ED with sepsis and pain;
- A higher quality of clinical documentation;
- Fewer unnecessary delays in diagnostic test turnaround times;
- Improvement in the orientation and training of staff; and
- More standardised, regular, formal, and timely administrative processes.

In aggregate, the range of activities implemented by different hospitals was reported to have a significant impact upon the standard of quality and safety within the ED. Following initial assessment, implementation of local quality and safety activities, and re-assessment by participating hospitals:

**There was a significant improvement in compliance with the ED Quality Standards across NSW public hospitals participating in the Project**

*(Wilcoxon  $Z = 105.0, p = 0.001$ ).*

The appointment of QSOs was considered to be a crucial factor. QSOs were able to support the assessment of local needs, identification of high priority projects, and foster staff awareness and willingness to participate in ED quality and safety activities. Timely and relevant feedback to ED staff members was observed to further enhance staff awareness and involvement, and promote a genuine culture of continuous quality improvement. As a result, a significant majority of staff working in the participating EDs considered that there were:

**More opportunities to focus on quality improvement**

**Better documentation of quality activities**

**Improved staff preparedness to work on quality activities**

More importantly, a significant majority of staff working in participating EDs considered that the QSO position had: made a positive difference to quality improvement within their health service and was a valuable use of resources.. The decision as to how to resource the quality culture in EDs into the future is for LHDs to make now that the quality foundations have been laid.

A significantly higher percentage of ED staff members were:

**Aware of the aims and objectives of the Project**

**Aware of the Quality Standards for ED performance**

**Aware of other colleagues involved in their local Quality Teams**

**Aware of the activities required to improve local quality standards**

The number and nature of activities implemented by individual hospitals varied. Almost all hospitals implemented the two projects mandated by the ECI, to improve the standardisation of death reviews and appropriate ordering of tests. However, ED staff members were less aware of the outcomes associated with these projects.

Other quality and safety activities were tailored to local ED needs. For these activities, a significantly higher proportion of ED staff members were:

**More aware of the frequency of clinical audits**

**More aware of the frequency of incident reviews**

**More aware of the number of quality activities**

A significantly higher number of staff members were also perceived to be actively involved in ongoing quality and safety initiatives following implementation of the Project in participating hospitals.

In relation to future benefits, a significant majority of staff working in the EDs of participation hospitals considered that:

**The Project was more likely to drive continuous quality improvement**

**The Project was more likely to improve the quality of ED services**

**The Project was more likely to increase the consistency of ED services in NSW**

**The Project was more likely to protect the public from harm**

Based upon available data, a number of potential predictors of improvement in ED Quality Standards were investigated, including the number of reported: enablers, barriers, quality and safety activities, information sources used to communicate progress, and the number of months that the QSO was employed. Further replication and validation of the following findings is required, based upon an independent (and preferably) larger sample of individual hospitals adopting the ECI recommended approaches to ED quality and safety improvements.

Exploratory analysis of these variables identified two factors accounting for improvement in hospital performance, including; the **number of quality and safety activities** undertaken

and, the **duration of employment of the QSO** at participating hospital sites (*Variables = 2, Mallow's Cp = 1.6, RSq = 70.2, Adj RSq = 64.8*). Subsequent analysis of these findings resulted in:

**A prediction equation for identifying the likely improvements in compliance with ED Quality Standards following implementation of the ECI Project, which is estimated below:**

***Compliance with ED Quality Standards = (-0.109 a constant) + (0.0117 x Total Activities Implemented) + (0.0134 QSO months of employment).***

## Summary and conclusions

Overall, the ED Quality Framework Project has been a successful policy instrument to promote improvement in the quality and safety of ED services provided across NSW public hospitals. The materials developed by the ECI have been credible to ED staff and offered a practical method of managing ongoing continuous quality improvement in the ED. The additional funding provided by NSW to employ local QSOs to lay the foundation for quality approach in EDs has been well received. QSOs have been able to support the development of appropriate infrastructure to identify priority activities within the ED, promote staff engagement and involvement in a range of different activities, assess the impact of these activities, and communicate findings to ED team members. This has strengthened the quality culture in hospitals who participated in the Project.

Significant improvements in self-assessed compliance with the ED Quality Standards have occurred. In addition, major drivers of these improvements have also been identified to include (a) the period of employment of a part-time QSO in the ED, and (b) the number of quality and safety activities undertaken within an individual ED. Based upon these findings, levels of future improvement in quality and safety can be estimated and used to support any ongoing business case for Project implementation.

This evaluation has highlighted the benefits of identifying a person responsible for leading quality and safety activities in the ED, which may be a QSO type role or other existing ED staff member. The QSO role has played a significant role in reorienting and enabling EDs to focus on quality and safety as core business. This has resulted in a positive cultural change in participating EDs which has been a significant outcome of this project.

## 2 Background

### 2.1 The Emergency Care Institute of NSW

The NSW Government has prioritised the use of standardised evidence-based care in NSW hospitals as a key strategy to improve health system efficiency and patient outcomes. In 2010, the Agency for Clinical Innovation (ACI) was established to drive improvements across the healthcare system. The ACI has established clinical networks to identify conditions associated with significant system utilisation or variations that are amenable to change; and target these through the development of models of care that ensure best practice clinical models are implemented in the NSW health system.

The Emergency Care Institute (ECI) was established under the auspices of the ACI, with a primary aim of improving outcomes for patients presenting at hospital emergency departments (EDs) across NSW through coordination, networking and research.

### 2.2 The ED Quality Framework project

The ECI identified that many EDs were struggling to find the resources to undertake quality compliance and improvement activities on a planned, regular basis. Accordingly, the ECI formulated a number of ED Quality Standards to promote continuous quality improvement in five (5) key operational areas, relating to:

- Clinical Practice;
- Research Activities;
- Education and Training;
- Clinical Administration; and
- Professional Recognition of activities by hospital EDs.

The ECI developed a number of tools to assist ED staff in undertaking gap assessments, developing quality improvement plans, and managing the implementation of local quality improvement activities.

Funding was also provided by NSW Health to employ 23 Quality Support Officer (QSO) roles at 0.5 FTE for a 12 month period. The main aims of the QSO's were to:

- Establish multi-disciplinary Quality Teams in the ED;
- Implement the standards, resources and tools developed by the ECI; and
- Support quality activities considered to be high priority by local ED Quality Teams.

## 2.3 Hospitals participating in the project

Participation in the ED Quality Framework Project (the Project) was open to all Level 4-6 EDs operating in public hospitals across NSW. Health services participated in the project on a voluntary basis. Sites were selected following an expression of interest process. Each site was required to submit an application for funding of a QSO position and to confirm support arrangements for the duration of the project by:

- Nominating a project sponsor;
- Specifying in-kind medical leadership; and
- Committing to establish a Quality Team that would assess gaps in current service activities and oversee implementation of high priority activities to improve ED Quality Standards.

Hospitals selected to employ QSOs and implement the Quality Standards are presented in Table 2-1.

**Table 2-1 ED Quality Framework Project – timeline for QSO appointments by site**

Site	2012/13				2013/14				Ongoing
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Bankstown			Feb-13				Feb-14		
Calvary Mater		Nov-12					Mar-14		
Campbelltown		Dec-12				Nov-13			
Canterbury		Nov-12							✓
Children's Hospital Westmead*		Dec-12			Jul-13				
Coffs Harbour*			Feb-13			Dec-13			
Concord		Nov-12				Dec-13			
Dubbo*		Dec-12			Jul-13				
Gosford			Jan-13				Feb-14		
Lismore			Jan-13				Feb-14		
Liverpool*			Mar-13			Nov-13			
Maitland			Jan-13				Jan-14		
Orange*		Dec-12		Jun-13					
Prince of Wales			Mar-13						✓
Royal North Shore			Feb-13				Feb-14		
Royal Prince Alfred		Dec-12							✓
St Vincent's		Dec-12				Dec-13			
Sutherland*			Feb-13		Sep-13				
Sydney Children's Hospital			Jan-13				Feb-14		
Tamworth*			Mar-13			Dec-13			
Tweed			Jan-13				Jan-14		
Westmead			Jan-13				Feb-14		
Wyong				May-13					✓
Project commencement	Project completion				*Project did not continue for 12 months				

One hospital was only able to maintain employment of a QSO for a 6-month period (Sutherland). Four hospitals were only able to maintain employment of a QSO for 9-months (Children's Hospital Westmead, Dubbo Base, Liverpool, and Tamworth Base). The

remaining 18 hospitals had maintained employment of a QSO for 12 months, and four of these had maintained QSO positions at the time of evaluation reporting (Canterbury, Prince of Wales, Royal Prince Alfred and Wyong Hospital).

## 2.4 The rationale for evaluation

The ECI wished to establish methods of identifying and monitoring variation in ED performance against the Quality Standards. The evaluation was to provide an opportunity to identify better practice and disseminate findings to promote ongoing continuous quality improvement for all EDs in public hospitals across NSW.

## 2.5 The purpose of this report

Independent consultants were engaged to evaluate the processes and outcomes associated with implementation of the ED Quality Framework Project (henceforth referred to as the Project). This report provides a high level evaluation of findings into the appropriateness, efficiency and the effectiveness of the Project against the objectives set by the ECI, which were to promote:

- Establishment of ED Quality teams;
- Consistency in approaches to assessing quality standards;
- Capacity to identify areas for ongoing quality improvements;
- Collection of information to monitor the quality of services;
- The development of a quality and safety culture in public hospital EDs;
- Improved consistency of ED service delivery across NSW; and
- Protection of the public and staff from harm.

The evaluation has been based on site specific reports to the ECI outlining the impact of Project activities implemented by individual hospitals. A number of targeted stakeholder consultations and staff surveys were also undertaken by the evaluation contractors to supplement this information. Details of the approach undertaken for the approach to evaluation are provided in the following Chapter of this report.

## 2.6 The Evaluation audience

Evaluation of the Project was considered to be of interest to a range of key stakeholders, primarily including (but not necessarily limited to):

- NSW Health in order to appraise the impact of the Project on the implementation of quality improvement activities at EDs, with a particular focus on the benefits associated with the funding of QSO;
- The NSW Agency for Clinical Innovation (ECI) to:

- ▶ Identify and monitor the impact of the introduction of the QSO role, and determine the effectiveness and efficiency of this role in NSW EDs;
  - ▶ Monitor the impact of the Project upon quality and safety outcomes;
  - ▶ Monitor the impact of the two mandatory projects undertaken by sites;
  - ▶ Identify opportunities for continuous quality improvement;
  - ▶ Provide ongoing contributions to the clinical evidence base for measuring and improving quality and safety outcomes; and
  - ▶ Determine the standard of support offered to sites by the ECI for the Project.
- Local Health Districts (LHDs) and individual hospital EDs to understand the impact of quality improvement strategies, the necessity of adequately resourcing ED staff to pursue these activities, and to facilitate performance benchmarking and structured quality improvement activities to support continuous improvements in quality and safety in the provision of ED care; and
  - Hospital staff and their capacity to establish locally relevant quality improvement strategies and promote and develop quality assurance mechanisms relevant to ED care. Hospital departments/units for which this project has relevance includes EDs, Quality Units, and Clinical Governance Units, Redesign Units, and areas responsible for coordination of information relating to hospital accreditation and performance monitoring.

Ultimately health service consumers (patients) and those who care for them have the potential to receive maximum benefit from the evaluation, through the development of an organisational culture, systems and processes that focus on continuous quality improvement in the provision of ED services.

## 2.7 The structure of this report

The second Chapter of this report outlines the specific approach of evaluation of information provided to the ECI by participating hospitals. Remaining Chapters focus upon key evaluation questions relating to the appropriateness, efficiency and effectiveness of project activities. For each of these Chapters, evidence has been gathered and is presented according to:

- Data reported to the ECI by individual EDs on quality activities;
- Perceptions of key staff involved in implementing the project at a local level (including those of the Quality Team together with perceptions of individual QSOs); and
- Perceptions of other staff who were not involved in project design or implementation.

The method and findings of the evaluation are now presented.

## 3 Approach to Evaluation

### 3.1 Key evaluation questions

A number of key evaluation questions were framed to guide evaluation, data collection and reporting. These questions focused upon three major elements of the Project, which are outlined in the following sections.

#### 3.1.1 THE APPROPRIATENESS OF THE ED QUALITY FRAMEWORK PROJECT

**Appropriateness** refers to the design of the Project, and the extent to which it addressed the needs of key stakeholders involved in ED service provision. The following questions were framed:

- How well did the project align with current clinical priorities and funding arrangements?
- How useful was the project in establishing activities and systems to measure and monitor quality and safety in the ED setting?
- How acceptable was the project to those involved in implementing quality strategies in the ED environment?

#### 3.1.2 THE EFFICIENCY OF THE ED QUALITY FRAMEWORK PROJECT

**Efficiency** refers to the extent to which the Project could be easily implemented by participating health services. Key questions included:

- What were the key processes involved in establishing and implementing the projects at different health services?
- What helped or hindered project implementation at different health services?
- What opportunities were considered to improve implementation of the project at different health services?

#### 3.1.3 THE EFFECTIVENESS OF THE ED QUALITY FRAMEWORK PROJECT

**Effectiveness** refers to the extent to which the Project was able to achieve the service and clinical outcomes that were originally intended. A number of questions were framed for investigation including:

- How central was the role of the QSO for implementing quality activities in the ED?
- How was the project used to identify priorities for quality improvement?
- What information was collected, reported and shared across individual settings to promote quality improvement?
- What was the level of staff engagement and capacity building?
- What impact did the project have on standards of safety and quality within the ED?

- How sustainable are project outcomes within the ED?

Available data was collected and analysed in order to appraise each of these questions throughout the remainder of this report.

## 3.2 Evaluation methodology

### 3.2.1 OPERATIONAL DEFINITION OF THE EVALUATION COHORT

The cohort for evaluation comprised the 23 hospital EDs selected for Project funding, which included:

- Bankstown;
- Calvary Mater;
- Campbelltown;
- Canterbury;
- Children's Westmead;
- Coffs Harbour;
- Concord;
- Dubbo;
- Gosford;
- Lismore;
- Liverpool;
- Maitland;
- Orange;
- Prince of Wales;
- Royal North Shore;
- Royal Prince Alfred Hospital;
- St Vincent's;
- Sutherland;
- Sydney Children's ;
- Tamworth;
- Tweed;
- Westmead; and
- Wyong.

### 3.2.2 METHODS OF POPULATION COMPARISON

The evaluation compared outcomes prior to and following implementation of the Project at individual health services. However, it should be noted that any levels of comparison were dependent upon the availability of baseline and follow-up information reported to the ECI. Accordingly, information was considered sufficiently available to evaluation the following range of quality improvement activities, grouped according to ED Quality Standard domains as presented in Table 3-1.

**Table 3-1 Summary of ED quality and safety activities selected for evaluation**

DOMAIN	NAME OF QI ACTIVITIES	CRITERION FOR SELECTION OF QI ACTIVITY	NO. OF SITES IMPLEMENTED	NO. EXEMPLAR SITES
<b>Clinical</b>	Death review	Mandatory	23*	4
	STOP review	Mandatory	17*	3
	Sepsis	Discretionary	7	2
	NEAT	Discretionary	6	2
	Analgesia and pain	Discretionary	9	2
	Clinical documentation	Discretionary	11	2
	Diagnostic turnaround time	Discretionary	6	1
<b>Education and training</b>	Orientation	Discretionary	4	1
	Staff credentialing	Discretionary	3	1
	Staff competency/training	Discretionary	5	1
<b>Administration</b>	Quality registry	Discretionary	11	1
	Patient surveys	Discretionary	6	1

NOTE: \* includes partial implementation

### 3.3 Key evaluation components

Four main activities were undertaken to structure and perform the evaluation of the Project, including:

- A detailed analysis of all project-related documentation submitted to the ECI from participating sites;
- The identification of a program logic to clarify the key ED activities and outcomes to be achieved;
- In-depth interviews with a targeted selection of project participants; and
- An opt-in on-line survey for all staff working in the ED at the 23 sites. QSO's were specifically targeted through an additional on-line survey sent to their forwarding e-mail addresses.

#### 3.3.1 REVIEW OF BACKGROUND DOCUMENTS

The first stage of the evaluation involved a desktop review of all project related documentation. These documents included, but were not limited to:

- Information on the project, including scope, aims and objectives, implementation plan, participating sites, requirements of participants, outcome measures, project status, etc.;
- Reference documents;
- Advisory committee documents;
- The ACEM ED Quality Framework;
- QSO orientation and training documents;
- Quality Improvement Plans (work plans);
- Information on the mandatory Quality Improvement projects (STOP and Death Reviews);
- Available data (baseline and subsequent) relating to the project;
- Self-assessments (on project initiation and completion);
- Project Progress reviews (where available);
  - ▶ Quarter 1
  - ▶ Quarter 2
  - ▶ Quarter 3
- Final project reports; and
- Case Study Successes.

Key themes that emerged in relation to site-specific activities and outcomes were qualitatively coded and grouped (into tables) for analysis.

### 3.3.2 DEVELOPMENT OF A PROGRAM LOGIC FOR EVALUATION

The program logic included the rationale for the project, the key activities for the ACI/ECI and LHD/EDs and the expected short term outcomes (within the 12 month project period).

#### **Major activities to be evaluated**

Individual health service activities, and essentially, EDs, have predominantly focused upon the key elements of the implementation of the ED Quality Framework including:

- Recruiting the QSO role and providing management oversight for the QSO;
- Providing in-kind senior medical leadership as part of the quality team;
- Staff participation in training and communication forums with the ECI and other participating project sites;
- Self-assessment against the Framework and the development of a Quality Improvement Plan;
- Participation in two mandatory quality improvement projects and locally determined additional quality improvement projects based on the Quality Improvement Plan;

- Project management to facilitate establishment and completion of Quality Improvement projects;
- Communication within the hospital to raise awareness of the Quality Improvement projects and to link with hospital-wide clinical governance processes; and
- Provision of quarterly project reports and a final project report.

### Major outcomes to be evaluated

The focus of the evaluation was upon the short-term outcomes that were anticipated to arise during the 12 month period associated with its implementation in 23 Hospital EDs. This coincides with the period for which QSO positions were formally funded by NSW Health, and focuses upon the extent to which a range of benefits were identified, including:

- The development of quality improvement plans;
- More appropriate ordering of diagnostic investigations;
- Implementation of regular morbidity and mortality reviews;
- The completion of projects identified in local quality improvement plans;
- Increased compliance with Quality and Safety Standards; and
- Evidence of improvements in quality and safety outcomes for staff and patients.

An assessment of the medium to longer term outcomes is outside the scope of this Evaluation Plan. A more complete description of the underlying program logic is presented in Appendix 1.

### 3.3.3 TARGETED STAKEHOLDER DISCUSSIONS

For the purposes of this evaluation, thirteen nominated sites participating in the *ED Quality Framework Project* were contacted by the evaluation consultants to obtain feedback on the implementation of the project. Twelve of these sites participated in telephone consultations with the consultants as listed below.

- |                 |                   |                     |
|-----------------|-------------------|---------------------|
| ▪ Bankstown     | ▪ Concord         | ▪ Sutherland        |
| ▪ Campbelltown  | ▪ Gosford         | ▪ Sydney Children's |
| ▪ Canterbury    | ▪ Prince of Wales | ▪ Tweed             |
| ▪ Coffs Harbour | ▪ St Vincent's    | ▪ Westmead          |

A discussion guide, based upon the key evaluation questions, was formulated to structure the basis of these discussions (Appendix 2). Interviews were conducted with senior medical, nursing and/or allied health staff involved framework implementation. QSOs who were still employed at participating hospitals also took part in discussions. All interviews occurred via teleconference and took up to 60 minutes to complete.

### 3.3.4 SURVEY OF ED STAFF AND QUALITY SUPPORT OFFICERS

An online survey for ED staff was designed and disseminated via ED Directors to gather feedback about the implementation of the project at each site. The survey sought to capture information from a broad range of ED staff relating to a range of aspects of the project including:

- Awareness of:
  - ▶ The implementation of the ED Quality Framework project;
  - ▶ Information available about the project;
  - ▶ The agreed quality improvement priorities at the participating site;
  - ▶ Establishment of a quality team;
- Understanding of the project within the broader context of quality, including:
  - ▶ The quality standards that underpin the ED Quality Framework;
  - ▶ The intent of quality in protecting the public from harm;
  - ▶ Its role in broader continuous quality improvement;
  - ▶ Benchmarking and consistency of ED quality within a state-wide service system; and
- The role of the QSO and the impact on:
  - ▶ Clinical audits;
  - ▶ Incident reviews;
  - ▶ Quality improvement projects, including Mortality and Morbidity reviews and ordering.

Open ended questions also sought information on staff awareness regarding the nature of projects being undertaken at each site as part of the project, changes that would have made the QSO role more effective and observations on the results of implementation of the Project within the ED at the participating hospital. A copy of the staff survey is provided in Appendix 3. In addition to the online staff survey, QSOs were also provided with the opportunity to complete free text answers to the questions posed in the stakeholder discussion guide. Key characteristics of survey respondents are reported below.

## 3.4 The profile of survey participants

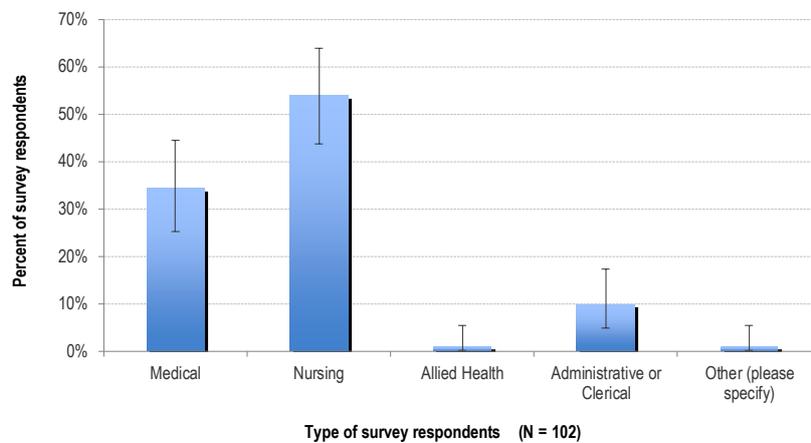
A total of 102 staff at participating sites completed the survey. Demographic characteristics of survey findings indicated that:

- The majority of respondents were nursing (53%) and medical (34%) staff (Figure 3-1).

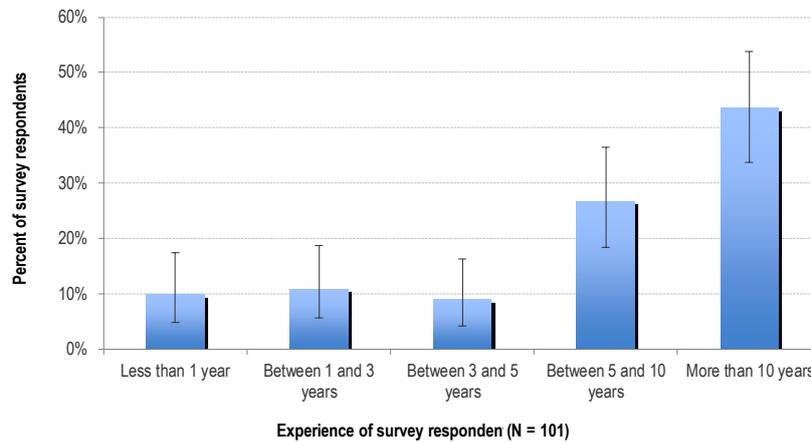
- Around half of all respondents (50% had worked in ED for more than 5 years (Figure 3-2).

Around four in every five survey respondents (80%) were aware of quality and safety projects arising from the Project at their respective hospital (Figure 3-3). However, most survey respondents (60%) were not part of their local Quality Team (Figure 3-4).

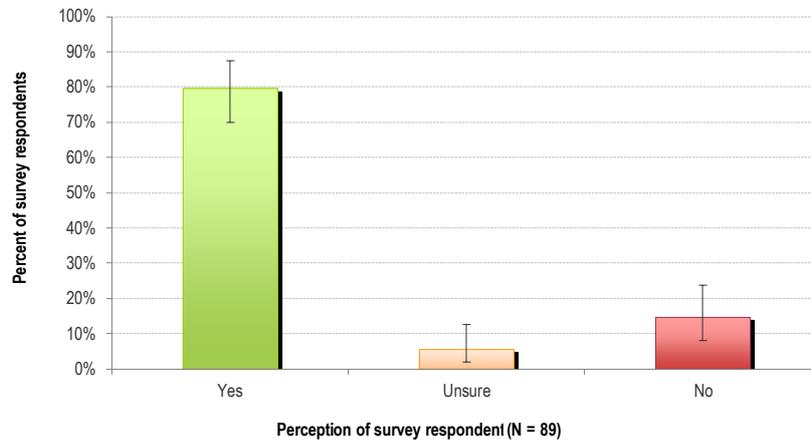
**Figure 3-1: Professional occupation of respondents (n=102)**



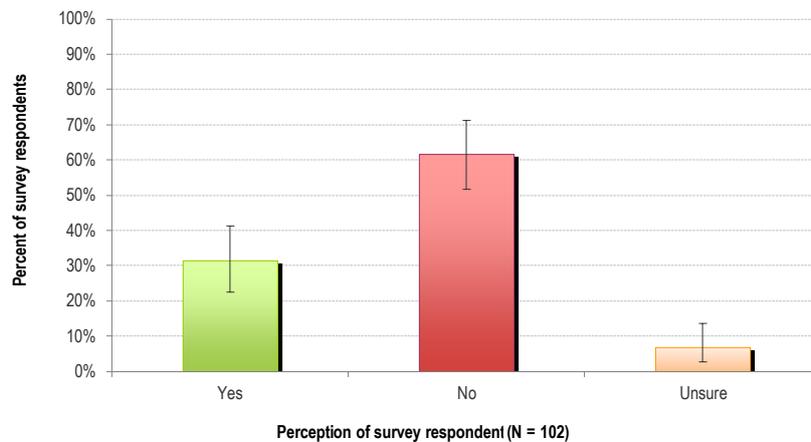
**Figure 3-2: Years working in ED**



**Figure 3-3: Awareness of implementation of ED Quality Framework Project in ED**



**Figure 3-4: Member of Quality Team**



Thus, in the absence of a definitive denominator to establish a true response rate, survey respondents appeared to represent the typical mix of staff working in an ED, were professionally more experienced and aware of the Project, but not involved as a member of the local project implementation team in the ED.

The following Chapter examines evidence relating to the overall appropriateness the Project design, the extent to which it aligns with current clinical and funding priorities, the utility of systems and processes established by the ECI to facilitate Project implementation, and the overall acceptability of the Project to key stakeholders involved in local quality and safety activities.

## 4 Project appropriateness

**Appropriateness** refers to the design of the ED Quality Framework Project, and the extent to which it addresses the needs of key stakeholders involved in ED service provision. Accordingly, this Chapter focuses upon answering the following questions:

- How well did the project align with current clinical priorities and funding arrangements?
- How useful was the project in establishing activities and systems to measure and monitor quality and safety in the ED setting?
- How acceptable was the project to those involved in implementing quality strategies in the ED environment?

### 4.1 Alignment with current clinical priorities and funding arrangements

#### 4.1.1 QUALITY STANDARDS FOR EMERGENCY DEPARTMENTS

The Australasian College for Emergency Medicine (ACEM) Policy on a quality framework for emergency departments was developed in 2007. It addressed a key shortcoming at the time - the lack of a consistent description of quality standards to inform and drive quality activities across emergency departments. Underpinning ACEM's Policy is a belief *that 'a quality culture is fundamental to the provision of the highest standard of care in Australasian emergency departments'*.

The challenges associated with provision of quality services in an ED are considerable. The ED is one of the busiest, most complex areas in acute hospitals. ED clinicians are confronted by multiple pressures including high service demand, presentations of critically ill patients, rotating clinical placements, management of access issues, and meeting system performance targets together with increasing public expectations.

It is also recognised that the demand for ED services has been increasing in health care systems across the world, thereby placing increasing pressure on staff within these settings to meet the immediate needs of patients presenting for care.

#### 4.1.2 RISING DEMAND FOR ED SERVICES

The demand for emergency health care has been rising consistently across the developed world, with presentations to emergency departments (ED) increasing by between 3% to 6% per annum.<sup>1,2</sup> A recent RAND Corporation report into *The evolving role of EDs in the United States*<sup>3</sup> comments on the evolution of EDs since the Second World War. Amongst other findings, the study recognises that EDs have become an important source of hospital

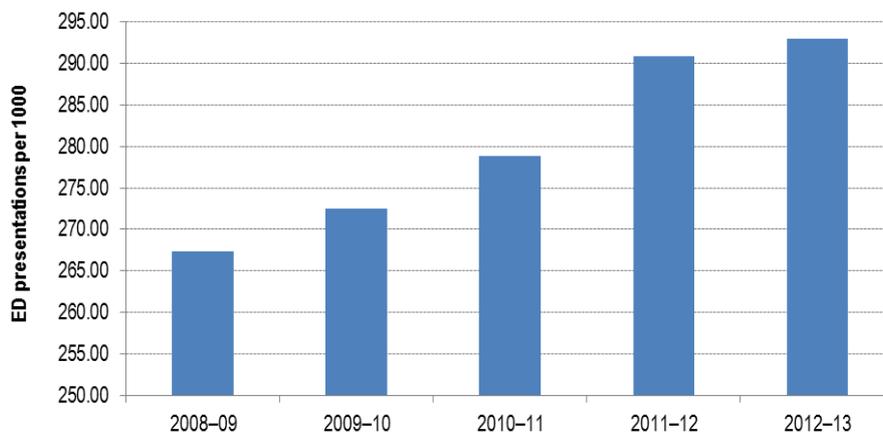
---

1. Lowthian, JA, Curtis, AJ, et al, MJA Australia 2012, 196(2) 128-132  
2. PLOS ONE, Volume 8 (6) June 2013  
3. RAND Corporation, Research Report *The Evolving Role of Emergency Departments in the United States*, 2013

admissions and a place to conduct complex diagnostic workups for patients with “worrisome symptoms”.

In Australia, the recently released AIHW report *Australian Hospital Statistics 2012-2013 Emergency Department Care*<sup>4</sup> notes that nationally, ED presentations have increased by 4.0% on average year on year between 2008-09 and 2012-13 (Figure 4-1).<sup>5</sup>

**Figure 4-1: Emergency department presentations per 1,000 persons, public hospital emergency departments, 2008–09 to 2012–13**

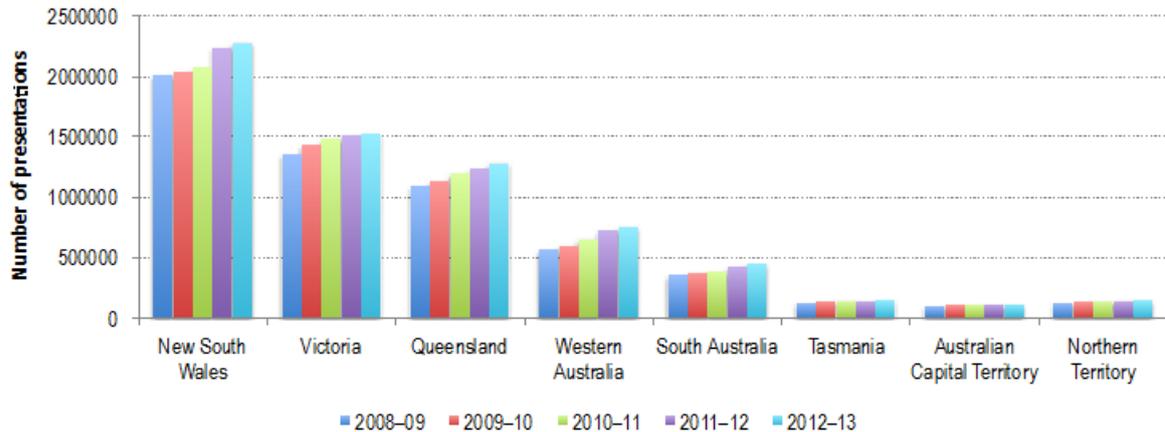


When this trend is considered at a jurisdictional level, it is evident that NSW has the most ED presentations of all states and territories (Figure 4-2). There has been an average growth of 3.2% since 2008-09, with the greatest growth being from 2010-11 to 2011-12, when ED presentations increased by 7.8%.

4. AIHW, Australian hospital statistics 2012-2013: emergency department care (2013)

5. Following adjustment for changes in the coverage of the collection, the increase was noted to be in the order of 2.9% on average each year.

**Figure 4-2: Emergency department presentations per 1,000 persons, public hospital emergency departments, states and territories, 2008–2009 to 2012–2013**



However, when *rate* of growth (per 1000 population) is examined, it is evident that Western Australia, South Australia and Queensland have experienced a more significant increase in community demand for ED services during this time than NSW (Figure 4-3). Thus, overall increases in demand for services places additional pressure on EDs to maintain quality and safety in the presence of rising levels of patient throughput.

**Figure 4-3: Average growth in ED presentations per 1,000 persons – 2008-2009 to 2012-2013 by state/territory**



#### 4.1.3 NATIONAL EMERGENCY ACCESS TARGETS

Increases in the number of ED presentations places significant pressure upon the acute health care system. These issues have become more critical following the recent introduction of the National Hospital and Health Care Reforms. Service funding will now be more closely aligned to the number of patients treated and discharged within specified time lines (e.g., 4 hours for the ED). Penalties for unplanned re-presentations to the ED or

admissions to hospital will remain. Thus, approaches to reduce the load of non-acute presentations upon the ED have become a primary focus of hospitals in NSW and across Australia.

## 4.2 Activities implemented to improve ED quality and safety

As previously summarised in Table 3-1, 23 hospitals across NSW were provided with the opportunity to:

- Assess their compliance with the Standards derived from the ACEM policy;
- Identify priority areas for continuous quality improvement; and
- Implement a range of local activities to enhance the quality and safety of services.

The Project also required that two mandatory projects be undertaken to promote greater standardisation of death reviews, and more appropriate ordering of diagnostic tests. The range of activities, undertaken by specific hospitals participating in the Project is presented in Table 4-1.

Hospital activities were aligned to all major domains of the ED Quality Standards.

The majority of quality and safety activities focused on improvements in Clinical Standards, and included:

- Standardising of morbidity and mortality reviews (23 hospitals);
- Improving the appropriateness of diagnostic tests (21 hospitals);
- Improving clinical documentation (11 hospitals);
- Improving pain management and analgesia administration (9 hospitals);
- Clinical audits (8 hospitals);
- Improving the identification and management of sepsis (7 hospitals);
- Decreasing time to receive diagnostic test results (6 hospitals);
- Increasing patient flow through the ED (6 hospitals); and
- Reducing re-presentations following ED treatment (2 hospitals).

Education and training activities focused upon improvements to:

- Staff training (5 hospitals);
- Staff orientation (4 hospitals);
- Staff credentialing (3 hospitals); and
- ED education (2 hospitals).

Administrative activities focused upon a range of areas, such as:

- Increasing the implementation of quality audits (11 hospitals);
- Improving the use of patient satisfaction surveys (6 hospitals);

**Table 4-1: Hospital activities classified according to ED Quality Standard domains**

Domain	Activity	Sites																						
		Bankstown	Calvary Mater	Campbelltown	Canterbury	CHW	Coffs Harbour	Concord	Dubbo*	Gosford	Lismore	Liverpool	Maitland**	Orange	POW	RNSH	RPAH	St Vincent's	SCH	Sutherland**	Tamworth	Tweed	Westmead	Wyong
Clinical	Death Review	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	STOP	✓	?	✓	✗	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✗	✓	✗ <sup>^</sup>	✗ <sup>^</sup>	✓	✓	✓	✓	✓
	NEAT/ Patient flow	✓						✓				✓						✓				✓	✓	
	Documentation			✓						✓	✓	✓		✓	✓	✓			✓		✓	✓		✓
	SEPSIS		✓				✓			✓						✓		✓				✓	✓	
	Diagnostic turn around times						✓								✓	✓		✓	✓			✗		
	Representations									✓		✓												
	Clinical Audits	✓	✓		✓					✓														✓
	Analgesia/pain management	✓	✓		✓					✓		✓					✓			✓			✓	✓
Clinical Audits	✓	✓		✓	✓				✓						✓		✓						✓	
Education and Training	Orientation		✓				✓		✓													✓		
	Staff credentialing						✓												✗			✗		
	Staff competencies/training			✓					✓						✓								✓	✓
	ED Education Program		✓							✓														
Administration	Quality registry /audits		✓			✓			✓		✓			✓		✓	✓	✓	✓		✓		✓	✓
	Staff surveys				✓					✓						✓	✓				✓			
	Patient satisfaction/surveys			✓		✓									✓	✓	✓		✓					
	Project management tools		✓												✓		✓							
	Communication tools		✓	✓								✓							✓					✓
Research <sup>^^</sup>	Local Projects	✗			✗	✗				✗	✗	✗	✗	✗	✓					✗	✗			

Note: ✓ Fully implemented    ✓ Partially implemented    ✗ Not implemented at time of reporting    ? Unknown (not reported)

\*Dubbo hospital information based on reports in Q1 and Q2 as no Q3 or final reports were provided. \*\*Maitland and Sutherland hospitals information based on Q1, Q2 and Q3 as no final report was provided. <sup>^</sup>St Vincent's report notes specifically that their ED chose not to participate in STOP (Final report) and in consultation Sydney Children's Hospital indicated that they deliberately did not pursue STOP as "ordering for paediatrics is different to adults". <sup>^^</sup> Research projects were those identified in site Quality Improvement Plans.

- Staff surveys (5 hospitals);
- Developing tools to facilitate staff communication (5 hospitals); and
- Developing tools to assist project management (3 hospitals).

A number of projects relating to the Research Quality Standards were also listed in individual hospital quality plans. However, the implementation and impact of these activities were not directly reported.

Based on activities planned and implemented across the 23 hospitals represented in Table 4-1 there was an average of 6 projects per hospital ED. The number of individual hospital activities ranged from 3 to 11. At the end of the project, around:

- 67% of activities had been fully implemented (n=90);
- 27% of activities had been partially implemented (n = 37); and
- 6% of activities had experienced delays in implementation or were otherwise not reported (n = 8)<sup>6</sup>.

Reasons for partial or delayed implementation are addressed in the following Chapter of this report.

### 4.3 Acceptability of the Project to key stakeholders

The majority of Quality Team members interviewed as part of the evaluation reported that the Project had provided a welcome **opportunity to invest in quality and safety** activities within their ED.

*“As all clinical staff are time poor, a dedicated QSO that has time to pull and analyse data is important.”*

*“As a regional hospital there are limited resources for quality activity and this project provided a way of accessing resources to look at quality.”*

Historically, attention to quality and safety in the ED had been the responsibility of the Director and/or Nurse Unit Manager. In this context, the **presence of additional resources** to focus on quality and safety issues was considered to be extremely valuable.

*“Time and conflicting priorities did not allow the desired activities to be performed, completed and changes to processes made.”*

*“ED is a place that needs someone to focus and drive quality as there are very few positions that have any dedicated non-clinical times allocated. The only two are the Director ED and the NUM who have some admin time but that’s usually taken up with everyday administrative and executive functions. The only other dedicated non-clinical roles are education focussed.”*

---

6 Note percentages sum to 101% due to rounding.

Additional resources to employ QSOs had allowed EDs to take a more **systematic approach**.

*“To provide a structure to review our existing processes to ensure positive patient outcomes were achieved.”*

*“To obtain funds to employ someone to assist in facilitating the establishment of a quality group which would drive the belief that a quality culture is fundamental to the provision of the highest standard of care in our ED's.”*

Local QSOs were able to **co-ordinate and manage other staff** in order to maintain the momentum of quality activities, and promote compliance with ACEM policies.

*“The main reason for [us] to participate was to improve ED care in line with College policy. The ED had no quality officer and this provided an opportunity to get some coordination on quality with both nursing and medical areas. It provided a framework and timelines to work to and drive quality [the] agenda.”*

*“Staff have greater confidence in undertaking a quality project but still lack many of the skills. The QSO is able to provide support, education and assistance to staff performing these activities whilst helping their professional development.”*

The **Standards were readily acceptable** to members of staff within most of the participating EDs.

*“The ED Quality Framework is very acceptable to all parties.”*

Relatively few Quality Teams perceived that the Standards did not align with the broader focus of their particular hospital.

*“The QSO and the executive sponsor's perspective didn't align with the needs of the department. There was a fundamental disconnect right from the start.”*

Where differences in quality focus occurred, other Teams considered that **the Standards were sufficiently flexible** to accommodate local issues.

*“I believe it has flexibility within it so that it can be functional.”*

The **self-assessment tool was reported to be a valuable starting point** for identifying quality and safety priorities.

*“You can't aim to improve if you don't know what's wrong. We recognised that our systems and processes could have been better.”*

The self-assessment was also considered to be a **useful method of measuring achievements** resulting from quality and safety activities undertaken in the ED.

*“The ability to implement and improve the M&M processes, measure our performance against the self- assessment tool and identify improvements.”*

Others commented that the Project also allowed the ED to focus upon preparations for upcoming hospital accreditation.

*“It assists the Emergency Department in achieving activities required for accreditation.”*

In relation to the two mandatory projects, several hospitals had already undertaken a significant amount of work to improve the appropriateness of ordering diagnostic tests in the ED. For these sites, devoting further attention to this issue was considered to be a lower priority compared with other hospitals.

In a small number of hospitals, members of staff perceived they were being **asked to do “yet another project”**, opportunities to integrate project activities within hospital quality systems were overlooked and overall interest in pursuing quality and safety activities remained low.

In other hospitals staff reported that the Project had **enabled them to “sharpen” existing quality and safety structures**, by having more regular/fixed meetings to focus on quality issues rather than their historical “ad-hoc” arrangements, and by taking the opportunity to integrate ED quality systems within their wider hospital environment.

#### **4.4 Overall appropriateness of the Project**

EDs across the world are facing increasing demand for services and financial pressures to maximise patient throughput. Up until the Project was designed, implemented and resourced by the ECI, EDs in NSW have had limited time to pro-actively focus upon quality and safety initiatives.

The Project provided materials to assist EDs in identifying areas for ongoing continuous quality improvement and encourage a wide range of activities to improve ED Quality Standards.

The Project was considered highly beneficial to the majority of hospitals involved. QSOs were welcomed as a valuable addition to the ED team. The standards were considered to have credibility given that they were based upon the ACEM policy. The self-assessment tool was considered to be a useful method of assessing need and measuring the success of quality outcomes. The Project was reported to result in an improved awareness and focus upon quality and safety issues amongst staff and demonstrable improvements in compliance with the Standards.

Thus, available evidence supports the appropriateness of Project design. The following Chapter focuses upon key stages of project implementation at each of the participating hospitals, issues that facilitated or hampered project development, and areas that might be improved to streamline the ongoing efficiency of quality and safety activities undertaken in the ED.

## 5 Project efficiency

**Efficiency** refers to the extent to which the Project could be easily implemented by participating health services. Accordingly, this Chapter focuses upon answering the following questions:

- What were the key processes involved in establishing and implementing the projects at different health services?
- What helped or hindered project implementation at different health services?
- What opportunities were considered to improve implementation of the project at different health services?

### 5.1 Key processes undertaken to implement projects

#### 5.1.1 COMMON APPROACHES TO IMPLEMENTATION

The process for site implementation of the ED Quality Framework included:

- **Establishment of a Quality Team** – with clear roles and responsibilities to support the implementation of the quality framework. Representation was to include medical, nursing, allied health, clerical staff and hospital management together with the funded QSO position;
- **Self-assessment** - to assess the EDs compliance against each ED Quality Standard, identify good practice together with areas for improvement, and set priorities for action;
- **Quality improvement plan** – that documented current practices through the self-assessment process against the ED quality standards and identification of the area for improvement. The quality improvement plan was intended to provide the summary of key areas prioritised for improvement over a 12- 24 month period.

In addition to locally identified projects, two mandatory activities were specified as part of the Project, which included:

- **The Sensible Test Ordering Project (STOP)**<sup>7</sup>. The aim of these activities was to substantially improve the appropriateness of pathology and radiology ordering across the sites with funded QSO roles.
- **A review of Death Audits**<sup>8</sup>. The aim of these activities was for sites with funded QSOs to facilitate a review and revitalisation of death screening and review processes as well as the conduct of M&M meetings to ensure they are consistent with best practice.

---

7. ECI – ED Quality Framework *Sensible Test Ordering Project (STOP) Brief* - [http://www.ecinsw.com.au/sites/default/files/field/file/ED%20Quality%20Framework%20-%20STOP%20Project%20Brief\\_0.pdf](http://www.ecinsw.com.au/sites/default/files/field/file/ED%20Quality%20Framework%20-%20STOP%20Project%20Brief_0.pdf)

8. ECI – ED Quality Framework *Sensible Test Ordering Project (STOP) Brief* - [http://www.ecinsw.com.au/sites/default/files/field/file/Standardised%20Death%20Reviews%20in%20ED%20resources\\_1.pdf](http://www.ecinsw.com.au/sites/default/files/field/file/Standardised%20Death%20Reviews%20in%20ED%20resources_1.pdf)

Common implementation activities undertaken by each participating hospital are presented in Table 5-1.

**Table 5-1: Implementation Activities**

Site	Implementation Activities									
	Recruit QSO	Establish Quality Team	Senior Medical Leadership of Quality Team	Self-Assessment	Quality Implementation Plan	Staff Engagement/Communication Strategy	Participation in Mandatory Projects	Linkages to Hospital Quality & Safety	Quarterly Project Reports	Data Sourcing / IT issues
Bankstown	✓	✓	✓	✓	✓	✓	✓		✓	
Calvary Mater	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Campbelltown	✓	✓	✓	✓	✓	✗	✓	✗	✓	
Canterbury	✓	✓		✓		✓	✓		✓	
CHW	✓	✓		✓	✓	✓	✓	✓	✓	✓
Coffs Harbour	✓	✓		✓	✓	✓	✓	✓	✓	✓
Concord	✓	✓	✓	✓	✓	✓	✓	✗	✓	
Dubbo	✓	✓		✓			✓		✓	
Gosford	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lismore	✓	✓		✓	✓	✓	✓		✓	
Liverpool	✓	✓	✓	✓	✓	✓	✓		✓	
Maitland	✓	✓		✓	✓	✓	✓		✓	
Orange	✓	✓	✓	✓	✓		✓		✓	
POW	✓	✓	✓	✓	✗	✓	✓		✓	
RNSH	✓	✓	✓	✓			✓		✓	✓
RPA	✓	✓		✓		✓	✓		✓	✓
St Vincent's	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓
SCH	✓	✓	✓	✓		✓	✓		✓	
Sutherland	✓	✓		✓		✗	✓		✓	
Tamworth	✓	✓	✓	✓		✓	✓		✓	✗
Tweed	✓	✓	✓	✓	✓	✓	✓		✓	✓
Westmead	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗
Wyong	✓	✓	✓	✓	✓	✓	✓		✓	✓

Note: ✓ = Fully implemented; ✓ = Difficulties reported; ✗ = Barriers encountered. Blank cells denote data that is unknown.

The broader intent of a standardised death review process was to facilitate:

- ▶ A consistent approach to the review of all deaths in, or within 24 hours of admission from ED;
- ▶ To indicate what was working well in supporting effective death review processes within the ED; and
- ▶ To identify opportunities to improve and maintain the overall quality of care provided in ED and the community.

Analysis of common implementation activities presented in Table 5-1 revealed that:

- All sites reported recruitment of QSO, undertaking self-assessment and Quality Improvement Plans;
- All sites also participated in one or both of the mandatory projects to varying degrees of full implementation;
- 22 of the 23 sites noted establishment of a quality team, with one site noting that a new quality team was not formed;
- 19 sites provided a full set of progress reports and a final report. Three sites had incomplete reporting;
- 15 of 23 sites identified senior medical leadership of the quality team, there was no specific information noted with respect to the remainder of the sites;
- 11 sites noted staff engagement/communication strategies in place, seven sites noted difficulties associated with staff engagement/communication and two sites indicated this activity as a barrier to the project. There was no information on this activity for three of the sites;
- Five of the sites had explicit commentary on linkages to hospital quality and safety systems, two sites noted no linkages and one site noted (during consultations) that ED quality issues were not linked to the broader hospital quality system.

#### 5.1.2 STRUCTURE OF QUALITY TEAMS

All sites reported establishing multidisciplinary quality teams. Quality team members across the 23 hospitals were reported to included:

- ED Directors;
- ED staff specialists, and/or trauma physicians;
- QSOs;
- ED Nurse Unit Managers;
- Clinical Nurse Consultants;
- ED Clinical Nurse Educators;
- Data analysis or other clerical staff;
- Mental health clinicians; and

- A variety of Allied health staff.

### 5.1.3 METHODS OF STAFF ENGAGEMENT

A range of strategies were employed to promote staff awareness, interest and engagement in quality and safety initiatives conducted within the ED including (but not necessarily limited to):

- Project information sheets disseminated to staff;
- E-mail updates;
- Attendance at dedicated quality and safety meetings;
- Up-dates at designated staff meetings;
- Individual face-to-face meetings; and
- Broadcasting audit findings.

In one innovative site, quality and safety projects were incorporated into professional development plans for members of the nursing staff. These individuals were encouraged to take charge of a particular quality and safety project, work up an appropriate methodology, and undertake their chosen initiative as part of their Master's degree.

## 5.2 Enablers and/or barriers to project implementation

The final reports submitted by hospitals to the ECI identified a range of enablers and barriers to project implementation (Table 5-2). Common enablers identified by multiple hospitals included:

- Support from senior ED staff (16 sites);
- Designated quality role (QSO) (13 sites); and
- Clinical project champions (7 sites);
- Multidisciplinary Quality Team (4 sites);
- Skill set / ability of the QSO (4 sites);
- Support provided by the ECI (4 sites); and
- The level of active engagement of ED staff (3 sites).

Common barriers identified by multiple hospital EDs included:

- Difficulties in gaining access to diagnostic data (6 sites);
- Limited availability of QSO's, due to part time employment, leave, or limited duration of employment (6 sites);
- Shift work of staff devoted to implementing quality and safety activities (6 sites);

- Project scope creep resulting in an unrealistic level of expectations (5 sites);
- Role ambiguity of the QSO (4 sites).
- Lack of medical engagement (4 sites); and
- Lack of engagement from other staff to implement activities (3 sites).

The number of enablers supporting Project implementation was reported to out-weigh the number of barriers encountered at 11 hospitals. Three hospitals reported encountering more barriers than enablers during implementation of the Project.

**Table 5-2 Reported enablers and barriers to Project implementation**

		Lismore	Calvary Mater	CHW	Concord	Gosford	Liverpool	SCH	Canterbury	St Vincent's	Tweed	Wyong	Bankstown	Coffs Harbour	POW	RNSH	Tamworth	Campbelltown	RPA	Westmead	Dubbo	Maitland	Orange	Sutherland	Total	
Enablers	Support of Senior ED staff	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓		✓					16	
	Designated Quality Role	✓	✓	✓	✓		✓	✓	✓			✓	✓	✓		✓	✓		✓							13
	Clinical or project champions	✓						✓			✓	✓		✓	✓						✓					7
	Multidisciplinary Quality Team	✓	✓	✓		✓																				4
	Skill set / ability of the QSO		✓		✓	✓					✓															4
	Support of ECI	✓									✓		✓					✓								4
	Staff engagement				✓						✓											✓				3
	Networking with other QSOs	✓	✓																							2
	Electronic systems and databases			✓																						1
	Medical engagement										✓															1
<b>Total Enablers</b>	<b>6</b>	<b>5</b>	<b>4</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>5</b>	<b>2</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>3</b>					<b>55</b>	
Barriers	Access to diagnostic data					✓						✓			✓	✓	✓			✓					6	
	QSO time limitations - part time / 12 months / leave	✓	✓	✓						✓	✓	✓													6	
	Shift work							✓	✓			✓		✓	✓					✓					6	
	Project scope creep									✓							✓	✓		✓	✓				5	
	Lack of medical engagement				✓									✓					✓		✓				4	
	Role ambiguity			✓	✓						✓								✓						4	
	Lack of staff engagement										✓			✓							✓				3	
	No space in the ED for the QSO												✓												1	
<b>Total Barriers</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>4</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>4</b>					<b>35</b>	
<b>Total</b>	<b>Net Enablers</b>	<b>5</b>	<b>4</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>-1</b>	<b>-1</b>	<b>-1</b>					<b>20</b>	

Note: Net enablers = Total enablers – Total barriers (Relative interpretation as hospital reports did not rank the importance of specific barriers or facilitators encountered).

## 5.2.1 INFORMATION REPORTED BY QUALITY TEAMS

Discussions with Quality Team members reinforced the nature of commentary identified in final reports submitted to the ECI from each hospital. Three main enablers emerged from consultation with selected hospitals. The level of **senior medical, nursing and executive staff support** was considered integral to Project operations.

*“All senior nursing and medical staff are very supportive.”*

*“LHD level executives willing to meet with the QSO.”*

*“Having the decision makers on the quality team who were able to implement the changes without the need for more senior involvement was time saving.”*

Levels of senior support were considered essential in order to support a **pro-active focus upon clear and achievable outcomes** associated with priority quality and safety activities.

*“Medical engagement is essential, as is a clear direction and proactive approach to quality activities.”*

The **level of skill together with the personal approach taken by individual QSOs** was also considered to be vitally important in gaining credibility with staff, and in minimising unnecessary burden associated with data collection, analysis and reporting.

*“The right skills and personality of the QSO are really important.”*

*“A thorough knowledge of ED current processes was very beneficial.”*

There was a general view that the **QSO role required multiple skills**, and was best held by someone who had a clinical background (lending credibility), had a background and interest in quality, had the capacity to work with data, facilitate project work and manage change.

*“The hardest part was to break away from ‘traditional nurse based quality model’. But data is complex and need more skills than available with a nurse based model to access the data.”*

Hospitals were particularly grateful for **the supports provided by the ECI**, in relation to training, audit and project implementation templates, information sharing, and ongoing assistance with trouble shooting or advice.

*“The ECI education and training for the QSO was very good.”*

*“The ECI provided absolutely great support. Sophie was extremely helpful, very approachable.”*

*“The training and the templates were also great support.”*

*“[The support from the ECI was] very effective. All issues were resolved quickly and the communication was great. The teleconferences and sharing of information was really useful.”*

The major barriers to Project implementation, reported by Quality Team members, were also consistent with project reports to the ECI. Three significant barriers were reported. **Limitations in senior medical support** (due to clinical commitments) were considered to impede the progress of particular safety and quality activities.

*“The only inhibitor to the project was the availability of our ED Director due to clinical demands.”*

A lack of **engagement of other medical staff** was also considered to result in difficulties establishing a broader safety and quality culture within the ED.

*“There was very limited medical staff buy-in to the project to encourage culture change.”*

A number of hospitals also noted that **limitations in the availability of their QSO** restricted the scope and rate of quality improvement activities that could be undertaken within the ED. For example:

*“Limited time and part-time hours has inhibited some aspects of implementation.”*

### 5.3 Opportunities to improve project implementation

Participating hospitals were asked to provide feedback in their final report on recommendations for the future. Common suggestions included:

- Ongoing maintenance of the QSO position in the ED (13 sites);
- Establishing clearer boundaries about the scope of the QSO position (5 sites);
- Establishing clearer expectations about the objectives of the Project (4 sites); and
- Setting goals that were more specific, measurable, achievable and realistic (3 sites).

Quality Team members provided several suggestions for future improvements. A number of hospitals considered that Project outcomes might have been enhanced if a **greater number of staff were exposed** to audit findings, and had become involved in implementing specific quality and safety activities.

*“More support early on and more awareness of the role to the whole department.”*

*“Inform staff of quality improvement projects”*

*“In future [we] need to look at using non-clinical NUMs and senior registrars to do more leg-work on projects.”*

A number of teams also reflected on the need for flexible approaches to promote the **involvement of staff across all ED shifts**.

*“The nature of 24/7 shift work in ED makes it impossible to get all the right people together at the same time.”*

*“Clearer understanding of systematic and structural barriers in EDs due to 24/7 rostering and impact on the implementation of quality activities within standard quality theoretical frameworks.”*

Some commented on the need for greater attention to the **mix of skills and abilities required to perform an effective QSO role**. For example:

*“The Quality Support Officer role would have been more effective if it had been taken on by someone with a degree of clinical expertise.”*

*“Implement as a full time permanent position with a staff member from ED as they know the staff and the ED processes.”*

Strategies to **embed quality and safety activities into the ongoing work of staff** within the ED were emphasised.

*“Ensure projects are ongoing.”*

*“It was developed to build sustainable systems. Therefore many of the things are ongoing and still being completed.”*

Approaches to **integrate activities into the broader quality and safety infrastructure** within the hospital and/or Local Health District were also considered important to promote the ongoing sustainability of Project outcomes.

*“Need to plan for regular presentations of quality projects at Hospital or District level.”*

The majority of Quality Teams considered that, in order to maintain outcomes achieved through the project, **an ongoing QSO position** (or similar) was required.

*“Ensure position is permanently staffed and funded!!”*

*“It needs to be an ongoing role.”*

## 5.4 Overall efficiency of the Project

The available evidence suggests efficient implementation of the Project at the majority of the participating sites. Each of the participating sites commenced the Project by recruiting a QSO, establishing a multi-disciplinary quality team (or using an existing forum), performing the initial self-assessment of their site against the Standards and developing a Quality Improvement Plan. These plans incorporated the two mandatory projects and any local projects prioritised according to gaps identified in the Standards.

The most significant factors associated with successful Project outcomes were reported to include; active and ongoing support from senior ED staff, a dedicated QSO with the appropriate mix of skills and experience to engage with ED staff, and the emergence or appointment of clinical project champions to support individual quality and safety activities undertaken in each ED.

The most significant barriers to Project implementation were reported to include; difficulties accessing data (particularly for the mandatory STOP project), time limitations of the part-time QSO position, an inability to get relevant people together at the same time due to the 24/7 shift work in an ED, and uncontained scope creep which placed additional burden on available QSO time.

Major suggestions to improve Project implementation in any new setting focused upon clearly defining the scope of the QSO role, clarifying expectations at the outset, and ensuring QSO time is protected. Strategies to promote broader staff awareness of quality and safety issues and embed ongoing improvement activities into routine work practices were also considered important. The presence of a dedicated team member to continue co-ordinating quality improvement within the ED and integrating these activities within the broader hospital quality framework was considered necessary in order to maintain outcomes achieved through the Project.

## 6 The effectiveness of specific ED quality activities

A large number of different activities occurred within sites that were implementing the Project. Accordingly, prior to evaluating the overall effectiveness of Project implementation across all hospitals, it was considered useful to examine the outcomes of a range of specific activities/initiatives. As previously reported, there were two mandatory activities funded through the ED Quality Framework Project, focusing upon:

- Improving the **standardisation of death reviews** and conduct of regular morbidity and mortality audits in the ED; and
- Improving the **appropriate ordering of tests** required by patients who are treated in the ED.

In addition to hospital activities focusing on these areas, a number of other local initiatives were undertaken, aiming to improve:

- Patient flow and capacity to meet ED **performance targets**;
- Identification and management of **sepsis** in the ED;
- Management of pain and **analgesia**;
- The standard of clinical **documentation**;
- **Turn-around times** for diagnostic tests;
- Staff **education, training, and development**; and
- ED staff **administrative practices**.

Case examples are provided in this Chapter to demonstrate the specific activities and outcomes reported for a selection of these initiatives. Cases have been selected based upon the adequacy of information provided in project reports and other documentation submitted to the ECI for evaluation. Independent validation of the outcomes reported by each hospital did not occur (due to the absence of reported information). Thus, further examination of claims made by individual health services would need to be followed up with individual hospitals.

### 6.1 ED improvements in standardised death reviews

#### 6.1.1 BACKGROUND

Contemporary clinical governance recognises the value of regular death screening and multidisciplinary review of specific cases. Integrating multidisciplinary Morbidity and Mortality M&M meetings into a Department's quality structure and processes is a way to review past practice and identify areas in need of improvement, as well as engaging a range of clinicians in clinical quality improvement.

Within three months of project commencement, all participating EDs were required to have reviewed and implemented improvements to their death screening and M&M meetings, consistent with the guidelines provided by the ECI.

Measures to be collected and monitored during the 12 month project included:

- The number of M&M meetings taking place, in addition to:
  - ▶ The number of patients discussed;
  - ▶ Key issues identified;
  - ▶ Recommendations arising from review; and
  - ▶ Actions to be taken;
- The total number of deaths;
- The percentage of deaths with a completed review;
- The percentage of deaths referred for further investigation; and
- The percentage of category 1 and 2 deaths with preventability confirmed and remedial action agreed.

These measures did not need to be submitted to the ECI in the quarterly reports but were to be collected locally.

#### 6.1.2 SELECTED CASE EXAMPLES

Information provided by the ECI revealed that a total of 20 of the 23 sites (87%) fully implemented the Death Review project (as per Table 4-1).

The sites that did not achieve full implementation cited reasons such as:

- A lack of engagement for project from senior emergency and executive staff;
- A QSO role that commenced late or ceased early; or that
- Current systems were in place and considered to be adequate.

Several of the sites experienced significant success with the Standardised Death Review Project, as outlined in the following case examples.

#### **Maitland Hospital**

At the outset of the project, Maitland Hospital acknowledged that their process for death review was spasmodic, particularly the sharing of information about significant issues back to staff. Following a review, a range of steps were taken to improve their systems and processes, including:

- A set of business rules were developed for the meeting;
- A standard agenda was developed including reporting of audit results, IIMS (incident) outcomes and broader quality;

- The meeting was advertised broadly, including emails and signage to attract greater participation;
- The meeting was opened up to be much more multi-disciplinary;
- Minutes were recorded at meetings and minutes and agendas were distributed to all staff;
- Each M&M was “themed” so topics of presentations related to that particular meeting (e.g. documentation, pain relief); and
- Lollies were introduced for the meetings.

The outcomes of these changes include:

- M&M Meetings are now routinely held every second month with 12 months’ worth of dates allocated in advance;
- The meeting is chaired and the agenda is adhered to;
- Attendance has improved dramatically, including staff coming in on their rostered days off to listen and learn (and eat lollies). Attendance has gone from approximately three to five staff per meeting to an average of 18 staff members from varying disciplines (has been as high as 24);
- The attendance is multi-disciplinary with good interaction between nurses, doctors and students of all levels of experience;
- Nurses are involved in presenting relevant topics of interest;
- IIMS (incidents) are now being fed back to staff;
- Audit results are being fed back directly and discussion is based around opportunities for improvement; and
- Minutes are being kept and distributed.

Overall, the ‘revamping’ of the M&M Meeting has proved very successful. It is now seen as a valuable learning tool that is also part of a wider Quality program. The department looks forward to the meeting and attendance is at an all-time high.

### **St Vincent’s Hospital**

The process for M&M meetings at St Vincent’s Hospital has markedly improved with implementation of the Project. They recognised that their M&M meetings:

- Occurred inconsistently;
- Had no official format; and
- There was no medical input into case presentations.

The QSO facilitated discussions between the ED Director, Deputy Director and the Nurse Unit Manager and a commitment was made for meetings to be scheduled monthly. The QSO set up the framework to be adopted, consistent with the guidelines provided by the ECI.

As a result, M&M meetings at St Vincent's are now formally structured, to include:

- Terms of Reference;
- Monthly occurrence;
- Multidisciplinary attendance;
- Formal Agenda;
- Recording of Minutes;
- Minutes and formal report are sent to Acute Program Governance Committee and Patient Safety and Quality Committee;
- Emergency Department Registrars present the cases;
- Feedback is provided to all staff; and
- Feedback and follow-up of cases is completed where escalation is required.

### **Concord Hospital**

Concord ED had unstructured M&M reviews and ad hoc meetings. One of the staff specialists reviewed patients that had either died in the department or died within 48 – 72 hours of an ED presentation / admission. This review included:

- Medical Record Number;
- Patients Name / Gender;
- Date of Birth / Age;
- Religion;
- Admission Date / presenting problem;
- Ward / Admitting Team;
- Date of Discharge / Death; and
- Reasons / Cause of Death.

When reviewing the current process, it was evident that there was no information pertinent to what was done either in ED or the ward, and whether there was an incident or an avoidable death.

A comparison of the M&M review process of the two other EDs within the LHD was undertaken with their QSOs and it was decided to standardise the process across the three LHD EDs.

Utilising the existing online LHD M&M form, a draft form was devised and disseminated to the relevant ED quality committees for review and comments. The form was trialled at Concord for its appropriateness through review of selected clinical incidents. Following these reviews it was decided to adopt the *Clinical incident / M&M Review Form* within the EDs.

The form provides a structure to analyse incidents and complete M&M reviews. The form also allows for the reviewer to make comments on what went well / not so well / lessons learnt and provide recommendations post review to reduce the further likelihood of similar events. The M&M meeting has also been reviewed and formalised with second monthly departmental M&M meetings which are formally rostered onto the ED teaching and education calendar.

### **Lismore Hospital**

Prior to the ED Quality Framework Project the M&M Meetings at Lismore Base Hospital were held quarterly and attendance was variable. There was no formal reporting back to ED staff or to the Lismore Base Hospital Quality Committee.

The team worked with senior clinicians to revamp the M&M meeting and encourage better attendance. Specific initiatives for the meetings included:

- Staff being encouraged to identify cases for discussion at the M&M;
- An M&M Report being completed for each meeting and forwarded to the Quality Committee; and
- The M&M Report including a case unique identifier, a brief clinical synopsis, issues identified, recommendations and the patient outcome.

As a result:

- M&M meetings are now held monthly. The monthly frequency ensures timely feedback to staff from relevant cases;
- The ED M&M meeting is now recognised as an important quality activity within the ED;
- Attendance has improved and there has been an increase in the reporting of cases discussed at M&M meetings; and
- The cases discussed are current and opportunities to make changes to improve patient care and outcomes are subsequently enhanced.

### **Sydney Children's Hospital**

Prior to the ED Quality Framework Project, there was no formal death or critical event review group to discuss and learn from cases of interest at the Sydney Children's Hospital. To improve the systems and processes, the following steps were undertaken:

- A mortality review panel was established to monitor and review cases resulting in the death of a patient to identify:
  - ▶ If the death was avoidable or unavoidable; and
  - ▶ Opportunities for improvement within the service.
- Terms of reference were developed by the death review panel based on Root Cause Analysis (RCA) incident review standards and teaching opportunities;
- Expressions of interest were circulated to all staff;

- A panel was established, headed by a medical and nursing co-chair appointed by the ED Medical Director and the Nurse Unit Manager. The panel then comprised a combination of senior and junior medical and nursing staff; and
- Process and guidelines were established.

Since the implementation of the panel four ED staff have been formally trained in RCA. The panel reviews a case and determines a number of recommendations, which are then submitted to the ED Medical Director and the Nurse Unit Manager.

The case and recommendations made from the review are presented to ED staff. A quarterly summary of cases is prepared, including review, action and follow up, and circulated for Directors of the Critical Care Program and the Director of Clinical Governance.

Examples of practice change as a result of the reviews include:

- A change in process for the way emergency drugs for intubation are drawn up;
- Management of palliative care patients in emergency; and
- Various documentation processes.

### 6.1.3 SUMMARY OF IMPROVEMENTS IN DEATH REVIEWS

Historically, Morbidity and Mortality (M&M) reviews have occurred in an ad-hoc or irregular basis in many EDs. One of the key aims of the Project was to improve the frequency and comprehensiveness of these quality activities. Almost every hospital participating in the Project had reviewed and re-developed their current M&M processes. As a result, M&M meetings have become:

- Routine – occurring at least monthly;
- Formalised – with a standing agenda and/or structured guidelines for case review;
- Multidisciplinary – with broad attendance and involvement of all team members; and
- Integrated – as results are actively communicated to all staff and issues requiring attention are incorporated into other quality and safety activities occurring within the ED.

## 6.2 ED improvements in appropriate ordering of tests

### 6.2.1 BACKGROUND

A number of EDs in NSW have investigated the appropriateness and cost of diagnostic test ordering within their own departments and found that without a specific focus and guidelines there is widespread variation in the extent to which some pathology and radiology tests are ordered<sup>9,10</sup>. The National Coalition of Public Pathology also published a report noting that

---

9 National Institute Clinical Studies 2007. Emergency care – Closing the Gaps – Prince of Wales Hospital - STOP IMAGING – The Implementation of a Radiology Sensible Test Ordering Practice In The Emergency Department

10 Stuart P, Crooks S, and Porton M. 2002. An interventional program for diagnostic testing in the emergency department. MJA 2002; 177: 131–134.

there is widespread variation in pathology test ordering, resulting in both over and under use<sup>11</sup>. There was no instrument across NSW to identify whether EDs had implemented mechanisms to improve and monitor the appropriateness of diagnostic test ordering. Consequently, the Sensible Test Ordering Project (STOP) was included as a mandatory project within the ED Quality Framework Project to examine local practices and improve the appropriateness of pathology and radiology test ordering.

The aim of the STOP was to substantially improve the appropriateness of pathology and radiology test ordering across the 23 sites with funded Quality Support Officers. Specifically, to reduce the overall number of tests performed per ED presentation by 20%<sup>12</sup> within six months of commencement. In addition to this, there would be:

- A reduction in pathology and radiology costs of 20%;
- Nil adverse events considered to be related to test ordering; and
- Nil evidence of cost shifting to other departments.

Suggested measures for collection at each site included:

- Number of overall pathology tests per presentation (monthly<sup>13</sup>);
- Number of specific tests per presentation as per Table 6-1 (measure and monitor locally monthly as relevant, report centrally quarterly);
- Number of overall radiology tests per presentation (monthly);
- Number of specific tests per presentation as per Table 6-2 (measure and monitor locally monthly as relevant, report centrally quarterly); and
- Number of IIMs reports where test ordering specified as causative factor (quarterly).

**Table 6-1 Specific Measures for Pathology Tests (STOP)**

PATHOLOGY TESTS	
FBC: full blood count	EUC: electrolytes, urea, creatinine
Coags: Coagulation studies	INR; international normalized value for prothrombin time
APTT: <i>activated Partial Thromboplastin Time</i>	CMP: calcium, magnesium, phosphate
ESR: erythrocyte sedimentation rate	Amylase
D-dimer	TFTs: thyroid function tests
Urine MC&S; for microscopy, culture and sensitivities	Troponin

11 National Coalition of Public Pathology. 2012. Encouraging Quality Pathology Ordering in Australia's Public Hospitals: Final Report. [http://www.ncopp.org.au/UserFiles/file/NCOPP%20QUPP%20Project%20Final%20Report%20\(web\).pdf](http://www.ncopp.org.au/UserFiles/file/NCOPP%20QUPP%20Project%20Final%20Report%20(web).pdf)

12 This figure may be adjusted once baseline data is obtained from all sites

13 This may be adjusted once baseline data is obtained from all sites

PATHOLOGY TESTS	
Blood cultures	Cholesterol
CRP: C-reactive protein	LFT *
Lipase *	Paracetamol *

\*Additions to the dataset

**Table 6-2 Specific Measures for Medical Imaging Tests (STOP)**

MEDICAL IMAGING TESTS	
Ribs	Spinal:
Facial bones	▶ Cervical
Sinuses	▶ Thoracic
Nasal bones	▶ Lumbar
Skull	▶ lumbosacral
Kub: kidney, ureters, bladder	CT Scans:
AXR: abdominal X-Rays	▶ Abdomen
	▶ CTPA: CT pulmonary angiogram
	▶ Facial bones
	▶ Head

Suggested steps to be undertaken at each site were to:

- Form a project team with representatives from pathology, radiology, ED, finance and performance management as appropriate;
- Agree aims and specific measures, including refining any data definitions;
- Determine local cause and effects and requirements for improvement (flow chart, brainstorm, cause and effect);
- Collect baseline data and establish regular reporting;
- Agree and implement STOP protocol localising available resources;
- Monitor and continually improve;
- Feedback within local site and monthly to ECI via monthly QSO teleconferences;
- Implement sustainability processes; and
- Write up the project.

Of the 23 sites with funded QSOs, nine (39%) fully implemented the STOP. A further eight sites partially implemented the project, three sites were delayed in implementation or

planned to implement, two sites did not implement the project and for one site, no information relating to the STOP was available.

Issues cited by the sites that either only partially implemented the project, or who were delayed in the project implementation, included:

- Issues with data from pathology and medical imaging departments, including timeliness and accuracy of test data;
- Issues obtaining accurate costing data from finance departments;
- The project was not considered to be a high priority;
- The benefit of the 'traffic light system' was debatable;
- There were already systems in place to guide appropriate test ordering;
- Focus was re-directed to projects of higher priority;
- Disagreement between the ED Directors within a LHD on 'Care Sets' to use district-wide; and
- Integration of the traffic light system into the FirstNet system.

#### 6.2.2 SELECTED CASE EXAMPLES

Three case examples of progress and achievements reported from activities focusing on more appropriate ordering of tests have been selected, including Coffs Harbor Hospital, Lismore Base Hospital and Tweed Heads Hospital.

##### **Coffs Harbour Hospital**

The Coffs Harbour Hospital focused on pathology test ordering as part of the mandatory STOP project. Strict guidelines were already in place for medical imaging, with a consultant radiologist required to approve all CT, Ultrasound and MRI scans out-of-hours, and a consultant ED physician required to approve these tests in-hours.

The Coffs Harbour Hospital achieved encouraging results with pathology test ordering through the project. Over the period May to December 2013, ordering of the following tests reduced:

- Full Blood Count - FBC (-28%);
- Calcium, magnesium, phosphate - CMP (-5%);
- D-Dimer (-8%);
- Thyroid function tests - TFT's (-4%);
- Troponin T/I (-6%);
- Blood cultures (-5%);
- Cholesterol - all (-34%); and
- C-reactive protein - CRP (-7%).

Cost effectiveness was reportedly difficult to measure for Coffs Harbour Hospital within this project, however, they have estimated (based on the Medicare Benefits Schedule) an approximate saving of \$2 - \$3 per patient presenting. This equates to an annual saving of between \$55,000 and \$65,000 based on 25,000 ED presentations per annum.

### **Lismore Base Hospital**

Following the implementation of STOP, Lismore Base Hospital achieved considerable cost savings by improving the appropriateness of ordering for pathology tests.

The hospital calculated a reduction in pathology costs of \$165,162 in the 2013 calendar year compared with the 2012 calendar year. A comparison of monthly pathology costs for the 2012/13 financial year against the 2011/12 financial year showed a reduction of \$2,109 per month. The Lismore Base Hospital expects this to increase to \$5,551 in the 2013/14 financial year. These savings have been driven by a reduction in the rate of pathology tests per patient decreasing from 2.6 in 2012 to 2.3 in 2013.

### **Tweed Heads Hospital**

Since the introduction of STOP, the Tweed Heads Hospital has achieved favourable results relating to appropriate test ordering, with some significant reductions noted:

- Blood gases (-40%);
- Thyroid function tests - TFT (-53%); and
- HbA1c (-86%).

Overall the Tweed Heads Hospital estimates that there has been a 22% reduction in pathology and radiology test ordering, with a calculated saving of \$33,171.03 per month.

## **6.2.3 SUMMARY OF IMPROVEMENTS IN APPROPRIATE TEST ORDERING**

With widespread variation in EDs in the ordering of pathology and radiology tests, one of the major aims of the Project was to reduce this variation by assisting departments to monitor the appropriateness of diagnostic testing. Consequently, the STOP was included as a mandatory project for all sites.

The majority of participating sites implemented the STOP to varying degree. As a result:

- Diagnostic data is being more routinely monitored;
- ED staff are more aware of appropriate test ordering;
- The number of 'inappropriate' test orders are reducing; and
- Health services are achieving tangible cost savings.

## 6.3 ED improvements in meeting performance targets

Two hospitals were selected to demonstrate activities undertaken to improve patient flow and the capacity to meet National Emergency Access Targets (NEAT).

### 6.3.1 SELECTED CASE EXAMPLES

#### Westmead Hospital

At Westmead Hospital the aim with the project was to redesign models of care within the ED to optimise the achievement of the NEAT target.

In January 2013, Westmead Hospital was achieving 43% against the NEAT.

In December 2013, this had increased to 72%.

The models of care requiring redesign were:

- Triage;
- SAFE-T;
- RESUS/TRAUMA;
- Acute care;
- Urgent care;
- ESSU (Emergency Short Stay Unit); and
- EAAU.

To implement the project, a targeted education and communication strategy was employed to engage staff. This included development of an *ED Models of Care* document for staff education, multi-disciplinary staff forums for information and audits of performance to demonstrate change. The *ED Models of Care* document included:

- A clear outline of each model of care;
- Descriptions of how the models work;
- Key factors required to operate each model; and
- Measures to assess the effectiveness of the models.

Refurbishment of the ED was also required to enable the operation of the redesigned models of care. Key success factors for the project were broadly considered to be successful staff engagement, willingness for change and executive sponsorship.

#### Concord Hospital

With increasing activity, Concord ED recognised that it was going to be very challenging to meet increasing NEAT targets. As part of the ED Quality Framework Project, the Concord Hospital undertook an innovative Transportation Team Project named the 'Boomerang Team'.

The “Boomerang Team” consists of a dedicated Registered Nurse (RN) and a ‘Runner’. The rationale for establishing the ‘Boomerang team’ were to:

- Provide a dedicated patient escort team to ensure timely arrivals to CT and MRI scans;
- Reduce the number of delayed or missed scan appointments;
- Provide timely transportation of admitted patients to their designated ward; and
- Improve working relationships and communication between ED and diagnostic imaging and ward areas; to
- Achieve more timely ED care.

Between August and October 2013, the ‘Boomerang Team’ made a total of 797 patient transfers during their operational hours of 12:30 to 20:30 hours. This equated to a total transfer time of 5,736 minutes.

Outside of business hours the RN belonging to the ‘Boomerang Team’ stays with all patients transferred to CT scanning. During the period August to October 2013, the ‘Boomerang Team’ RN amassed a total of 1,207 minutes in CT scanning<sup>14</sup>, in addition to the 5,736 minutes of escorts with the runner in transfers.

The 1,207 minutes spent in the CT scanner would have normally been carried out by one of the ED RNs. The RN would have to leave their other patients in the hands of their colleagues to conduct the escort, resulting in hours outside of the ED.

Data for the ‘Boomerang Team’ is entered into a database by a member of the ED staff for the purpose of ongoing evaluation of the project.

Although not entirely attributable to the ‘Boomerang Team’, Concord has observed an increase in the achievement of their NEAT target from 67% to 73%.

### 6.3.2 SUMMARY OF IMPROVEMENTS IN ED PERFORMANCE TARGETS

The pressure to achieve NEAT targets in an increasingly busy and complex environment requires targeted improvement strategies to reduce variation in practice that lead to delays in treatment. As a result of the projects focusing on performance:

- ED models of care are more clearly defined and widely understood;
- Data is being more routinely monitored;
- EDs are working more collaboratively with other diagnostic and clinical areas to identify issues and brainstorm solutions;
- In targeted intervention areas, delays in treatment are reducing; and
- Performance against the NEAT target is improving.

---

14 These times do not take into account weekend shifts and CT scans performed after the Boomerang Team finishes at 20:30 hours.

## 6.4 ED improvements in management of sepsis

A common focus for the ED Quality project included improving the management of patients presenting with sepsis. Specifically, this included the appropriate recognition and triaging of septic patients and achievement of benchmark times for the administration of antibiotics and fluid. Coffs Harbour Hospital and Westmead Hospital have been selected to showcase achievements with Sepsis Projects.

### 6.4.1 SELECTED CASE EXAMPLES

#### Coffs Harbour Hospital

One of the successful projects implemented by the QSO and the Quality Team at the Coffs Harbour Hospital related to sepsis. Their focus was to:

- Improve triage assessment and triage category;
- Improve early systemic inflammatory response syndrome identification;
- Improve clinical area disposition (resuscitation room vs. acute care);
- Maintain target times for IV antibiotic administration (within 60 minutes); and
- Improve completion of the Clinical Excellence Commission (CEC) sepsis data collection forms.

Coffs Harbour ED decided to 'relaunch' sepsis awareness to coincide with World Sepsis Day on the 13<sup>th</sup> of September 2013. This involved a highly visible display of posters and prompts, provision of a triage guideline for septic patients, display of the sepsis assessment forms in prominent locations and education by a clinical nurse educator and emergency physician. Education focussed on recognising systemic inflammatory response signs at triage, reminding staff to use the sepsis data collection form, appropriate triaging of sepsis patients according to the new guideline, as well as ensuring that the sepsis guidelines were known with respect to the provision of antibiotics and fluid management.

There were three key measures determined for the sepsis project at Coffs Harbour:

- The number of sepsis data collection forms being submitted to the CEC;
- The median time to administration of first antibiotic (benchmark 60 minutes); and
- The median time to start of second litre of fluid (benchmark 60 minutes).

The preliminary results of the 'relaunch' of the sepsis project are provided below:

In July 2013, an audit revealed that over the past six months, there had been an average of three to five sepsis data collection forms submitted to the CEC each month. As at December 2013, this had increased to an average of approximately 14 per month.

The median time to administration of first antibiotic decreased from 60 minutes in July 2013 to 53 minutes in December 2013.

The median time to start of second litre of fluid decreased from 106.5 minutes in July 2013 to 75 minutes in August 2013, 81.5 minutes in September 2013 and 80 minutes in October and November 2013. Unfortunately, this spiked up in December 2013 to 110 minutes.

Clearly, gains have been made in the number of forms being completed and submitted to the CEC and in reducing time to first antibiotic and second litre of fluid. However, the ED acknowledged that more work is required on an ongoing basis to sustain the improvements.

### **Westmead Hospital**

The Westmead Hospital achieved outstanding success with their sepsis project, with the NSW Clinical Excellence Commission stating<sup>15</sup>:

*“... Westmead Hospital has consistently shown that it is the best in the state for managing serious sepsis and septic shock. This is an impressive and important result with a [sic] huge patient safety benefits”.*

The aims and the outcomes of the sepsis project for Westmead have been summarised in Table 6-3 below. Westmead Hospital took the approach of the “3 R’s” for their sepsis project:

- **Recognise:** Improve early identification of septic patients;
- **Resuscitate:** Implement best practice with rapid antibiotics and IV fluids within 1 hour; and
- **Refer:** Improve communication and transitions of care.

**Table 6-3 Westmead Hospital Sepsis Project, Objectives and Outcomes**

OBJECTIVE	MEASURE	PRE-IMPLEMENTATION JAN 2013	POST-IMPLEMENTATION DEC 2013
Re-education and implementation of Clinical Excellence Commission sepsis assessment forms	<ul style="list-style-type: none"> <li>▪ No. of staff trained</li> <li>▪ Assessment forms</li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Unknown</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ 80 participants in Sepsis Week</li> <li>▪ Weekly audit of form use</li> </ul>
Early recognition and treatment of sepsis	<ul style="list-style-type: none"> <li>▪ Documentation of time to antibiotics (benchmark 60 mins)</li> <li>▪ Documentation of time to second bag of IV fluids (benchmark 60 mins)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Median time of 83 mins (Jan 2013)</li> <li>▪ Median time of 138 mins (Jan 2013)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Median time of 33 mins (Dec 2013)</li> <li>▪ Median time of 97.5 mins (July 2013)</li> </ul>
Auditing sepsis findings	<ul style="list-style-type: none"> <li>▪ Compliance with antibiotic guidelines</li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Unknown</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Unknown</i></li> </ul>
Updating sepsis database	<ul style="list-style-type: none"> <li>▪ No. of patients recorded in Clinical Excellence Commission database</li> </ul>	<ul style="list-style-type: none"> <li>▪ 100 patients (Jan 2013)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 830 patients (Dec 2013)</li> </ul>

The method they engaged to implement the project involved four main steps, as described below:

- **Identify current processes** – existing processes were mapped and staff brainstormed the causes of delay;
- **Identify gaps with guidelines** – gaps between current state and the Antibiotic Guidelines were identified and to address these gaps, access to senior medical staff was enhanced through the safe-t model of care and the Antibiotic Guidelines were customised and approved by the Western Sydney Local Health District;
- **Education** – an education program was provided by infectious disease consultants and pharmacists; and
- **Verbal and visual reminders** – laminated cards containing the “3 R’s” and the Guidelines were made for staff and sepsis trolleys were stocked with everything required to manage a septic patient.

Westmead considered the key enablers of the project, integral to the success, to be visible and committed executive leadership, engagement of clinicians and the use of data to

visually display the changes so that staff could see what was happening opposed to what they *thought* was happening.

#### 6.4.2 SUMMARY OF IMPROVEMENTS IN SEPSIS MANAGEMENT

A focus for EDs state-wide is improvement in the management of sepsis, particularly with regard to appropriate recognition and triaging of septic patients and achievement of benchmark times for the administration of antibiotics and fluids. As a result of the Project, management of sepsis has improved through:

- Increased monitoring and reporting of septic patients;
- Enhanced staff knowledge of symptoms and treatment;
- More appropriate triaging of septic patients;
- Improved administration of antibiotics against the benchmark times; and
- Improved administration of fluid against the benchmark times; resulting in
- Better patient care for those presenting to ED with sepsis.

### 6.5 ED improvements in pain management

Improving pain management and associated documentation was another project that was a common focus of the sites participating in the ED Quality framework project, with Tweed Heads Hospital and Canterbury Hospital both achieving success within this area.

#### 6.5.1 SELECTED CASE EXAMPLES

##### **Tweed Heads Hospital**

The Tweed Hospital focused on improving pain management in their ED with a project to enhance staff assessment and management of pain to improve patient outcomes.

*The Tweed Hospital has set an aim for 90% of patients presenting to the ED requiring pain relief to have medication administered according to their pain score.*

The Tweed Hospital had identified several issues with pain assessment and management:

- Patients presenting with pain or injury not routinely having a pain assessment/ documented;
- Reassessment following analgesia not routinely undertaken/ documented; and
- Triage category not always in-line with pain score documented.

To improve this, they implemented a series of strategies:

- Increased education to nursing staff regarding the importance of assessment/ reassessment of pain, including documentation in iView on EMR FIRSTNET;

- Education and promotion of standing orders/ nurse initiated analgesia;
- Highlighted the use of 'nurse protocol' when providing intervention; and
- Education to triage nurses regarding pain assessment and allocation of appropriate triage category.

Progress against this target is reviewed quarterly through audits.

### **Canterbury Hospital**

The Canterbury Hospital ED focused on improving pain management through increased nursing education.

An analgesia audit was completed in October 2013 and several issues were identified:

- Pain scores were not being recorded regularly;
- The time to first analgesia did not meet the recommended 30 minute NSW Health benchmark;
- Nurses were not initiating medication as frequently as they could; and
- A post-analgesia pain score was not often recorded.

The Canterbury Hospital ED developed an education package for nursing staff, which included information such as the importance of patients receiving analgesia in a timely manner, the relevance of pain scores and the role a nurse plays in pain control. Information about the physiological process of analgesia was also included. All nurses attended in-services and were regularly reminded in the ED of good pain management.

The audit was repeated in January 2014 and the following positive outcomes were noted:

- The instances of pain scores being recorded had improved by 44%;
- The time to first analgesia from triage decreased by 30 minutes;
- Nurse initiated medication increased by 28%; and
- Instances of post-analgesia score assessments increased by 30%.

The Canterbury Hospital ED now plan to continue nursing education for pain management and audit the progress regularly.

#### **6.5.2 SUMMARY OF IMPROVEMENTS IN PAIN MANAGEMENT**

Many patients presenting to EDs are experiencing some level of pain associated with their condition. To improve the comfort of these patients and provide timely relief of symptoms, initiatives to improve pain management were considered an important clinical objective. As a result of the Project:

- Pain assessments are being completed more routinely;
- Pain scores are being documented more often;

- Provision of analgesia is more timely, and is provided to more patients; resulting in
- Better provision of care for patients presenting to ED with pain.

## 6.6 ED improvements in clinical documentation

Several of the sites participating in the ED Quality Framework project recognised the need to improve clinical documentation within their department, whether it be process documentation such as transfers and handovers, mandatory reporting, or simply the comprehensiveness and completeness of patient treatment notes. Two excellent examples of improvements with clinical documentation are Orange Hospital and Tamworth Hospital.

### 6.6.1 SELECTED CASE EXAMPLES

#### Orange Hospital

A noteworthy example of a strategy to improve clinical documentation occurred at the Orange Hospital with their clinical documentation project. The focus of this project is to ensure there is a high level of documentation in the ED, specifically:

*“Documentation in the health care record will provide an accurate, concise, objective and complete description of all occasions of care that occurred during the person’s stay in the health service or contact with health care professionals”.*

The Orange Hospital ED formed a project team and set themselves a six-month aim to improve the standard of clinical documentation by all ED staff through:

- Reduction in documentation errors;
- Improvement in quality of documentation;
  - ▶ Inclusive of assessment treatment, plans, re-evaluation and relevant ADHOC charts.
- Increase in documentation of vital signs:
  - ▶ On presentation;
  - ▶ As an inpatient (frequency of documented vital signs to meet ED SOP – minimum hourly); and
  - ▶ Prior to discharge.
- Improvement in allergy evidence documentation;
- Improvement in discharge documentation; and
- Decreased use of non-hospital approved abbreviations.

The project team engaged the PVITAL approach to education and promote the project:

P – Patients name, age and presenting problem;

V – Vital signs (including trending);

I – Input / Output;

T – Treatment and diagnosis (including medications);

A – Admission / Discharge;

L – Legal aspects / Documentation / Plan.

A specific audit tool was developed to evaluate the project and performance indicators were set against baseline audit data. Currently, 20% of all presentations are being audited on a monthly basis to measure improvement and results are displayed on the ED white board for all staff to see.

### **Tamworth Hospital**

One of the projects resulting in significant benefit to Tamworth Base Hospital focused on improvement of clinical documentation; specifically implementation of a documentation system for patient's referred from outlying areas to the ED.

There was no formal method of recording telephone conversations regarding medical advice or transfer of patients from outlying hospitals to Tamworth Base Hospital ED. It is standard practice for medical officers or registered nurses from outlying areas to contact the senior medical officers in the ED for advice regarding treatment and/or transfer of patients. A template for documenting these conversations existed, but it was often lost.

Following a serious adverse event, a root cause analysis was completed and it was established that documentation of advice provided from the ED to an outlying GP was unable to be located at either end. An audit of senior medical officers at Tamworth ED revealed that 100% of them felt that the current system was inadequate for documenting medical advice given.

Through wide consultation with the Director of ED, staff specialists, senior registrars, the Nurse Unit Manager and other hospitals within the local health district, several formal documentation systems were explored at length. These included using CAP, iPMS, developing a new database and scanning a newly developed template to a generic email address for storage.

Ultimately, a pre-existing template called CHAT (Clinical Handover, Advice and Transfer of Care Form) was chosen and modified to suit local requirements. This form followed the ISBAR format (Identify, Situation, Background, Assessment and Recommendation).

Despite an acknowledgement that there should have been more pre-implementation education for staff, the form has been well received and the Tamworth ED are now working to have the information from the form integrated into the CAP system.

### **6.6.2 SUMMARY OF IMPROVEMENTS IN CLINICAL DOCUMENTATION**

A key aim of the Project was to improve the accuracy and comprehensiveness of clinical documentation to support the provision of safe emergency care. All sites implemented projects to improve their clinical documentation to varying degrees and as a result:

- Errors in documentation have reduced;
- Comprehensiveness of documentation has improved;
- Standardised documentation has been facilitated through the use of templates and information systems; and
- Overall quality of clinical documentation has improved.

## 6.7 ED improvements in diagnostic turn-around times

With increasing pressure for EDs to meet NEAT targets, many of the sites participating in the ED Quality Framework Project recognised that delays with diagnostic test results are one factor contributing to the length of stay of a patient in the ED that could be improved. The Royal North Shore Hospital is one example of a site that achieved great results through their project to improve diagnostic turnaround times.

### 6.7.1 SELECTED CASE EXAMPLE

#### **Royal North Shore Hospital**

As part of the ED Quality Framework Project, the Royal North Shore Hospital undertook analysis on diagnostic turnaround times, with the aim of identifying causes of delay and to work with radiology and pathology to improve response times.

The approach taken by Royal North Shore Hospital was two-fold, with a general analysis of all turnaround times for CT and ultrasound to identify delays, and a specific component of the project targeted at Troponin Pathology turnaround times.

To improve turnaround times with radiology, raw data is being analysed and shared between both the ED and radiology department to collaboratively facilitate interdepartmental solutions for delays.

A specific aim of achieving a 1hr turnaround time for CT and ultrasound has been set. Turnaround times from electronic order to completion are monitored against this target (e.g. as at December 2013 the consistent 12 month average for an abdominal CT scan was 1 hour and 46 minutes).

A target of 1 hour from Troponin collection to completion was also set. Data analysis showed that turnaround times for requests ranged from 1 minute to 2 hours and 54 minutes.

To facilitate improvement the ED organised for pathology staff to physically follow the blood taking journey from a chest pain patient's bedside to the lab. This helped to educate the pathology staff about the time critical nature of Troponin Pathology requests. As a result, the pathology department changed some of their practices to expedite these tests, including dedicating two centrifuges for ED blood samples and introduction of "ED Priority" bags.

Improvements made in diagnostic turnaround times will contribute positively towards achievement of NEAT targets.

## 6.7.2 SUMMARY OF IMPROVEMENTS IN DIAGNOSTIC TURN-AROUND TIMES

Avoidable delays in the provision of treatment may cause additional distress and discomfort to patients in ED and result in unnecessary length of stay. Many sites chose to implement projects to improve the turnaround time for diagnostic tests, and as a result:

- Data is being more readily collected, analysed and reported;
- EDs are working collaboratively with Pathology and Radiology to identify delays and brainstorm solutions;
- Staff have a greater awareness of the importance of appropriate test turnaround times, from both a clinical and a performance perspective; and
- Test turnaround times are improving against benchmark performance targets.

## 6.8 ED improvements in staff development and training

An area of focus for many of the sites participating in the ED Quality Framework Project was to improve their staff development and training. This occurred in many different forms, including improvement of staff orientation, credentialing and competency training. Noteworthy examples of these projects occurred at the Calvary Mater, Coffs Harbour and Westmead Hospitals.

### 6.8.1 SELECTED CASE EXAMPLES

#### **Calvary-Mater Hospital**

The Calvary-Mater Emergency Department has successfully overhauled their junior medical staff orientation program to provide several benefits to both the new doctors and the department.

The new orientation program consists of several components, including a hard copy orientation manual containing safety information and emergency forms, an electronic voiceover presentation, and a walking tour of the hospital and the ED. An orientation checklist is provided to ensure that staff undertake all components prior to commencing direct patient care.

There are multiple benefits of the new format and in particular, the introduction of the electronic voiceover section, including:

- A comprehensive and consistent orientation;
- A shortened time requirement, with the presentation being delivered in three hours rather than the previous eight hours;
- Cost savings of approximately \$5k per annum through the reduction in (paid) orientation time; and
- Key clinical staff with patient loads remain free to focus on direct patient care whilst the content is delivered electronically.

### **Coffs Harbour Hospital**

The Coffs Harbour Hospital undertook a credentialing project for Nurse Initiated (NI) Analgesia (standing Orders).

The aim of the project being to improve time to analgesia within the ED and enable patients to receive analgesia in a timely fashion.

This project involved development of Standing Orders for Oxycodone (PO) and Morphine Sulphate (IV) and a competency document for nurses to be assessed against to obtain credentialed status.

As at December 2013, this project had been partially implemented, with a pilot group of clinical initiative nurses trialling a Pain Management education package and being assessed for competency. The NUM of the ED was monitoring the ongoing compliance of protocols prior to the continued rollout of the project.

### **Westmead Hospital**

The Westmead Hospital provides an example of a successful staff education and training project for Blood Products, completed under the guidance of the QSO, which has obvious benefits for patient safety.

The aim of the Blood Products project was to educate staff on the safe administration of blood products, particularly in the time critical environment of the ED for resuscitation and trauma, to eliminate errors in administration.

The impetus for the project was the unfortunate recent occurrence of three major issues in the ED concerning the safe administration of blood and blood products.

To implement the project, the ED took three main steps:

- Consulted with the Pathology department to confirm safe practice;
- Identified (mapped) the process for delivery of blood to the ED for time critical trauma/resuscitation patients; and
- Developed an online training module for nurses on the relevant policies, procedures and practice of safe administration.

**The Westmead Emergency Department achieved 100% compliance of nursing staff for the online training.**

**Following the implementation of the project (up to December 2013), there were no further issues with the safe administration of blood and blood products.**

### **6.8.2 SUMMARY OF IMPROVEMENTS IN STAFF TRAINING AND DEVELOPMENT**

Errors and adverse events often result when staff are not provided with sufficient orientation and education to enable them to perform their role safely and effectively. The Project incorporated many innovative activities to improve staff training and development, and as a result:

- Orientation programs have become more streamlined, comprehensive, consistent and less resource intensive;
- IT is being utilised to enable more cost and time effective delivery of orientation and training programs;
- Extended scope of practice is enabling more timely provision of care;
- Errors and adverse events are less likely to occur; resulting in
- Better patient care.

## 6.9 ED improvements in administration

Administrative improvements were realised by all sites participating in the ED Quality Framework. Sites established new systems and processes for managing quality within the ED, including development of Quality Registers, Audit Registers, formal Agendas and Minutes for quality team and M&M meetings, Education and Training calendars, and administration of Patient Surveys, amongst others. Two noteworthy examples of administrative improvements included auditing at Prince of Wales Hospital and gaining patient feedback at Liverpool Hospital.

### 6.9.1 SELECTED CASE EXAMPLES

#### **Prince of Wales Hospital**

Improving the audit function was a focus for the ED at the Prince of Wales Hospital during the ED Quality Framework Project. Firstly, they developed an audit register, which involved identifying existing clinical audits and tools and selecting new audits to complete regularly. They engaged the medical students rotating through the department to undertake the audits, which was an effective way to resource the task and added another dimension to their experience in the ED.

In total, 13 additional clinical audits were added to the ED audit register, in addition to system wide audits completed for the purposes of accreditation against the NSQHS standards.

#### **Liverpool Hospital**

To improve the capability for patients to provide feedback about their experience in the Liverpool ED, they introduced Patient Experience Trackers. These are hand-held electronic devices that can be used at the point of care to gather feedback from patients. Up to five customised questions can be entered with multiple choice answers. The responsibility for undertaking the surveys with patients has been enthusiastically embraced by the NUMs in the ED, which ensures ongoing sustainability of the project.

## 6.9.2 SUMMARY OF IMPROVEMENTS IN CLINICAL ADMINISTRATION

Efficient and effective administrative processes are necessary to support optimal clinical care. One of the aims of the Project was to improve clinical administration within EDs, with most participating sites implementing quality activities within this area. As a result, clinical administration has become more:

- Standardised – with widespread use of templates and checklists;
- Regular – with quality registers, audit schedules and education calendars promoting forward planning;
- Formal – with Agendas and Minutes recorded;
- Accessible – with IT systems supporting information capture and access; and
- Timely – with staff and patient feedback gained at the point of care.

## 6.10 Overall summary of specific ED quality and safety activities

Project funding was contingent upon undertaking two mandatory initiatives, in addition to a range of other locally determined quality and safety activities. The majority of hospitals implemented the two mandatory initiatives focusing upon (a) improving the frequency and format of death reviews, and (b) enhancing the appropriateness of diagnostic test ordering. At the conclusion of the Project funding period many of the participating sites have advanced towards best practice for M&M meetings (including death review). In particular, M&M meetings have become:

- Routine – occurring at least monthly;
- Formalised – with a standing agenda and/or structured guidelines for case review;
- Multidisciplinary – with broad attendance and involvement of all team members; and
- Integrated – as results are actively communicated to all staff and issues requiring attention are incorporated into other quality and safety activities occurring within the ED.

Better practice in the ordering of appropriate diagnostic tests has also been achieved. As a result:

- Diagnostic data is being more routinely monitored;
- ED staff are more aware of appropriate test ordering;
- The number of 'inappropriate' test orders are reducing; and
- Health services are achieving tangible cost savings.

In addition, participating hospitals have implemented a range of other targeted quality and safety activities resulting in:

- Improvement in performance against NEAT targets;
- Improved provision of care for patient cohorts presenting to ED with sepsis and pain;
- A higher quality of clinical documentation;

- Fewer unnecessary delays in diagnostic test turnaround times;
- Improvement in the orientation and training of staff; and
- More standardised, regular, formal, and timely administrative processes.

The following Chapter examines the aggregate impact of individual quality and safety activities upon the overall performance and outcomes identified by each participating hospital.

## 7 The effectiveness of hospital level Projects

Effectiveness refers to the level of quality improvement that occurred following implementation of the Project at each of the participating hospitals. Accordingly, this Chapter focuses upon answering the following questions:

- How central was the role of the QSO for implementing quality activities in the ED?
- How was the project used to identify priorities for quality improvement?
- What information was collected, reported and shared across individual settings to promote quality improvement?
- What was the level of staff engagement and capacity building?
- What impact did the project have on standards of safety and quality within the ED?
- How sustainable are project outcomes within the ED?

Available evidence was gathered to address of these questions in the following sections.

### 7.1 Role of the QSO

#### 7.1.1 DATA REPORTED BY PARTICIPATING HOSPITALS

Funding provided for part-time QSOs was considered to be a critical element of Project implementation. Although the ACI provided a template position description for use by all sites, formal position descriptions developed by individual sites were not provided to the consultants for review. Nonetheless, around half of all hospitals participating in the Project (n=14) did outline the key tasks associated with this role in their progress reports to the ECI. The majority of these hospitals reported that the QSO position was responsible for:

- Establishing and managing their Quality Team;
- Implementing the ED self-assessment/re-assessment against the Quality Standards; and
- Managing the implementation of mandatory and other high priority projects.

Additional responsibilities of the QSO were reported by some hospitals to include development of an ED Quality Plan, implementation of specific audits, reporting of quality activities to staff, and raising the profile of quality within the broader ED.

#### 7.1.2 PERCEPTIONS OF THE QUALITY TEAM

Discussion with individual sites revealed almost unanimous support for the role of the QSO. The role was considered to be a vital method of providing **dedicated (part-time) resources to focus on quality**.

*“Having funding for QSO was crucial – in a regional hospital where there aren’t many resources dedicated to quality it is very useful to have someone who can go through data with a focus on choosing things that would be useful.”*

Quality team members reported that the QSO position had allowed them to **promote a quality and safety culture** within the ED. In addition, dedicated resourcing enabled health services to take a more pro-active and systems focused approach to quality and safety issues. Prior to the availability of a QSO, activities focusing upon quality and safety were considered to be more reactive to specific incidents or issues arising in the ED.

*“The QSO brings projects to the forefront and allows the system to pre-empt rather than be reactive to issues/incidents. [It] also allowed for benchmarking against other hospitals involved in the project.”*

The template position description and training provided by the ACI intended that the QSO would **coordinate and support other staff** within the ED to undertake quality and safety activities as part of the role. Where coordination and support was reported to have occurred, it not only created a more efficient use of the QSO role, it had also facilitated greater buy-in from staff and promoted broader participation in quality activities across the ED. Other sites also utilised the QSO role to help prepare for upcoming hospital accreditation.

Negative appraisals of QSO role were reported by one hospital. In this instance criticisms appeared to be based upon the methods employed by the incumbent.

*“The QSO did [their] own thing and was like a bull at a gate”*

As a result of this approach, interpersonal conflict appeared to undermine efforts to establish and maintain a focus on quality and safety activities.

### 7.1.3 PERCEPTIONS OF QSO'S

QSOs also thought that the **role was invaluable and should become an integral and ongoing part of the ED team**. However, it was recognised that most health services were unable to provide ongoing support to the role without additional resourcing. This is a decision for LHDs to make. However, the foundation of quality has been established in many EDs and there are potentially other options available to ensure that “quality” becomes a core focus of all ED work rather than the responsibility of one position.

*“[It is a] great role that should have been funded by [the hospital] as a priority but didn't, due to local financial constraints.”*

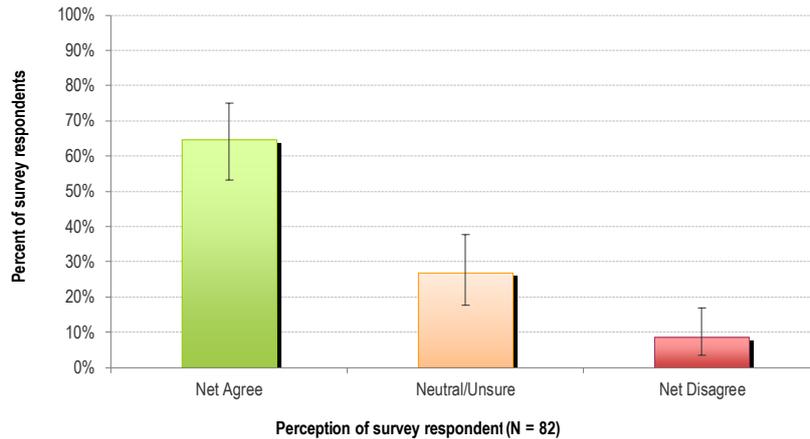
### 7.1.4 PERCEPTIONS OF OTHER STAFF WORKING IN THE ED

The perceptions of other staff working in the ED were consistent with reports provided by members of the Quality Team and CSOs. The majority of ED staff considered that the QSO role had resulted in:

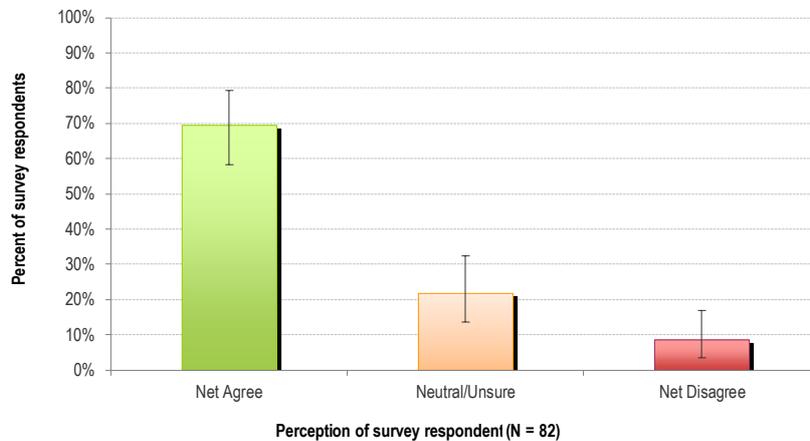
- More opportunities to focus upon quality improvement (Figure 7-1);
- Better documentation and monitoring of quality activities (Figure 7-2); and
- An improvement in quality and safety culture (Figure 7-3).

Staff also considered that the QSO role had made a positive difference to quality improvement in the ED (Figure 7-4), had been a good use of resources (Figure 7-5), and was worthwhile continuing in the future (Figure 7-6).

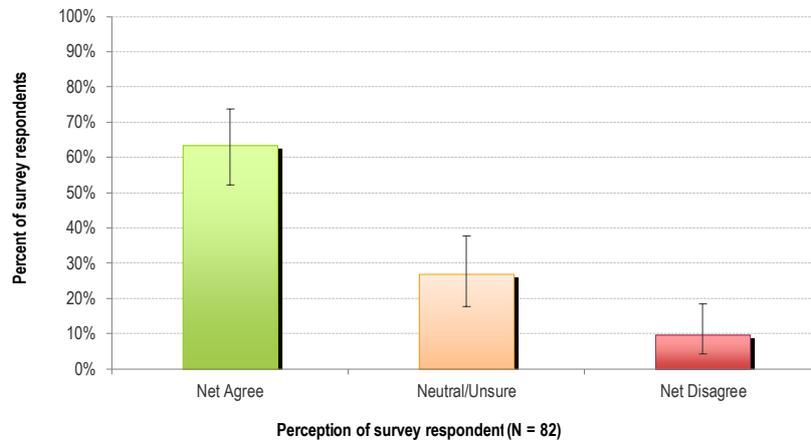
**Figure 7-1: The QSO has provided more opportunities to focus upon quality improvement**



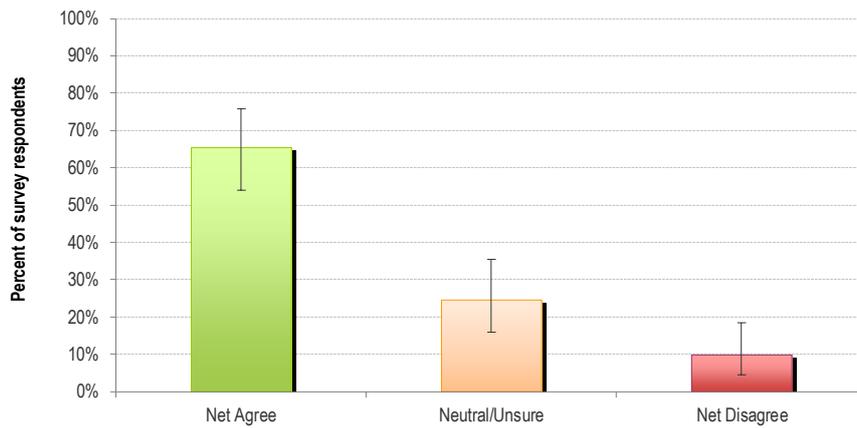
**Figure 7-2: The QSO has enabled the ED to document and monitor its own quality activities**



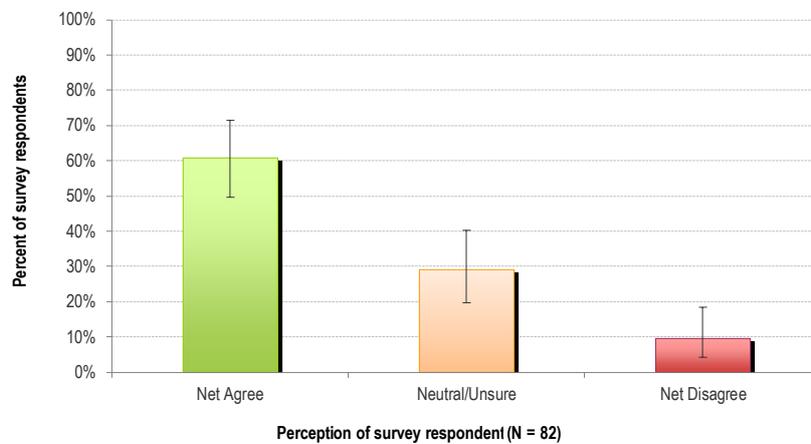
**Figure 7-3: The QSO has enhanced staff preparedness to work together to improve services**



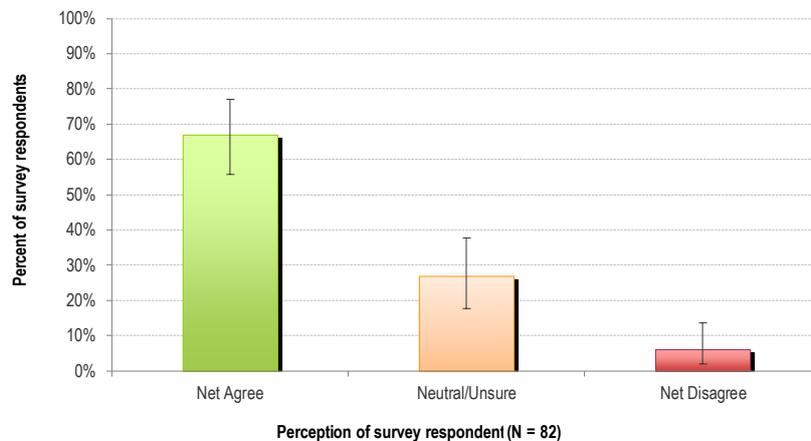
**Figure 7-4: The QSO has made a positive difference to quality improvement activities**



**Figure 7-5: The QSO has been a good use of ED resources**



**Figure 7-6: The QSO role would be worthwhile continuing in the future**



## 7.2 Identification of local priorities

### 7.2.1 DATA REPORTED BY PARTICIPATING HOSPITALS

The self-assessment tool provided by the ECI was used to ascertain compliance with each of the Quality Standards. Gaps in quality service provision were identified by each ED and priorities were established for immediate attention. An overview of gaps identified in site quality improvement plans, together with priorities targeted for intervention is provided in Table 7-1.

The highest levels of priority were assigned by most hospitals to the two mandatory projects including STOP (75%), and death reviews (56%). The next highest priorities were assigned to activities that established a Quality Team (56%) and clinical audits (40%).

### 7.2.2 PERCEPTIONS OF THE QUALITY TEAM

Following the implementation of a Quality Team and the appointment of a QSO, a **variety of different approaches were used to establish priorities** for ongoing quality improvement. Some sites commenced activities according to the gaps identified against standards, whereas others sought “short, sharp, and/or quick wins” to demonstrate value and “embed” quality within their ED through “proof of practice”.

A number of sites based priorities for implementation upon **staff discussion and a voting process** to promote staff buy-in. However, in some instances this led to overly ambitious priorities which were challenging to implement.

*“We tried to encourage and not “quash” staff enthusiasm, so ended up with quite a long list of projects. In retrospect we may have been too ambitious as some projects have been very slow to get off the ground.”*

*“The projects that were prioritised for the framework really should have been lower down the priority list [our list], there were some basic quality activities that really needed to be done first.”*

*“The QSO is not the idea maker – the ideas come from the clinical staff on the floor.  
The QSO facilitates and coordinates in a persistent and persuasive manner.”*

Quality Team members reported becoming more **aware of the need to establish a well-defined quality framework** and quality plan that included SMART<sup>16</sup> goals.

Tasks relating to self-assessment and prioritisation of quality initiatives were reported to result in:

- Improved knowledge of the ED Quality Standards by staff;
- Improved staff awareness of structures and systems established to improve quality and safety within the ED; and
- Improved understanding of local priorities for quality improvement.

---

16 SMART – Specific, Measurable, Achievable, Realistic goals within a defined measure of Time

**Table 7-1: Priorities identified in site quality improvement plans**

Domain	Activity	Sites																
		Bankstown	Canterbury	CHW	Coffs Harbour	Concord	Dubbo	Gosford	Lismore	Liverpool	Maitland	RPAH	SCH	Sutherland	Tamworth	Tweed	Wyong	Percent
Clinical	STOP	H	H	M	H	H	H	H	H	H	H	H	H	?	H	H		75%
	Death Review/M&M review		M		H	H		H	H			H	H	?	H	H	H	56%
	Clinical audits	H	M			M	H	M	H	H	H				H			38%
	Sepsis		H		M			M			H				M			13%
	Medication safety/ errors								H	H								13%
	Participation in national registries	H							H									13%
	Documented policies														H			6%
	Other			M/H	M/H	M/H		M/H	H	M/H	M/H	M	M/H	?	M/H	M/H	M	6%
	Analgesia		M	L	M	M		M		M		M	M				M	0%
Education and Training	Credentialing	H			M	H		M	H				?		M		19%	
	ED education programs	H				M		H	M	M							13%	
	Other		L			H		M/H							H		13%	
	Orientation	H		?	?			L							M		6%	
	Staff competencies and training							M					H					6%
Administration	Quality team	H	H					H	H	M			H		H	H	?	44%
	Quality culture/projects	?		H						M					H			13%
	Other		H					M/H	H		M						?	13%
	Patient satisfaction survey					M					M	H		?				6%
	Staff surveys					H					M							6%
	Guidelines and protocols					M	H				M							6%
	Data		L								M							0%
Professional	Participation on committees and external bodies	?							H	M								6%
	Other									H	M							6%
Research	Local projects	?	L	M				L	M	M/H	L				M/H	H		6%

Note: High = H; Medium = M, Low = L; and Activity reported but priority unspecified = ?

### 7.2.3 PERCEPTIONS OF QSOS

Feedback from QSOs indicated that **the self-assessment process was a critical element** for helping guide local priorities. Assessment against the quality standards appeared to provide the best gauge for establishing areas for action at the local level, which was refined based on local imperatives.

*“A number of quality projects were commenced to address some of the gaps in our self-assessment using the quality framework.”*

*“No medical audits being undertaken. Most activities revolved around clinical care with little being done in other domains.”*

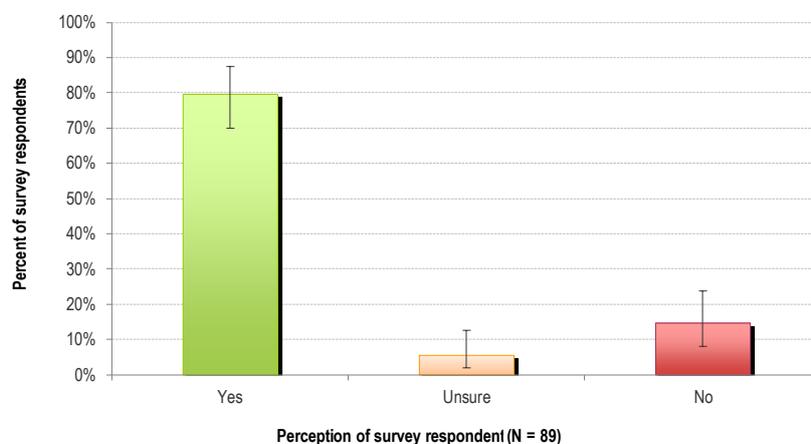
*“The one area we did not achieve obvious improvement in was research. This is challenging area without allocating funding.”*

### 7.2.4 PERCEPTIONS OF OTHER STAFF WORKING IN THE ED

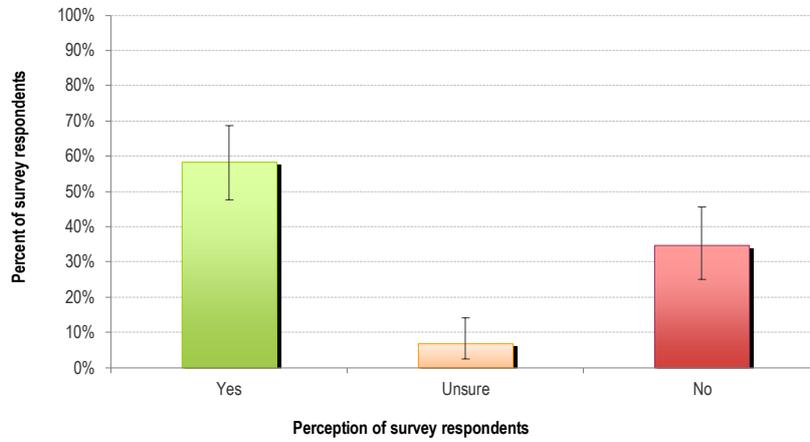
Perceptions of staff working in the ED were consistent with reports from Quality Team members. The majority of ED staff responding to the survey reported that they knew about the Quality Framework Project in their ED (Figure 7-7) and had received sufficient information about the rationale and intention of the project (Figure 7-8). In addition, the majority of staff also reported being aware of:

- The Quality Standards underpinning the project (Figure 7-9);
- The Quality Team responsible for implementing improvement activities (Figure 7-10); and
- The priorities established for quality improvement in their ED (Figure 7-11).

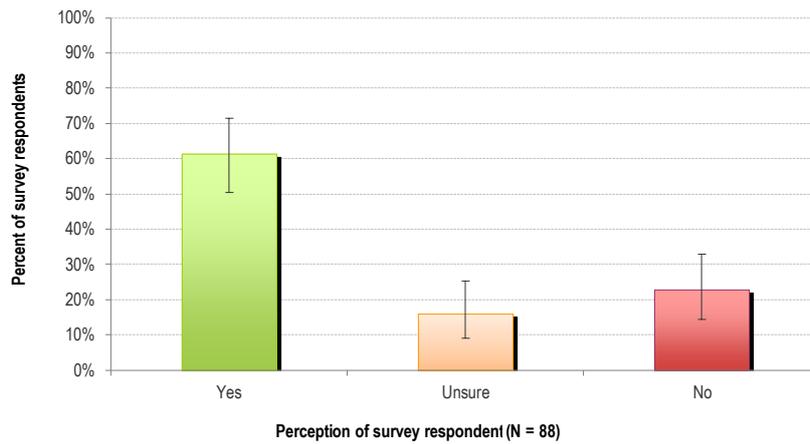
**Figure 7-7: Percent of staff aware of their ED Quality Framework Project**



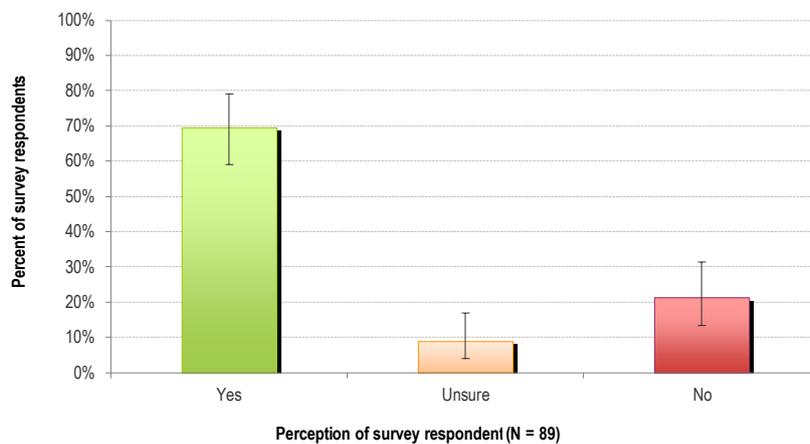
**Figure 7-8: Percent of staff with sufficient information about the Project**



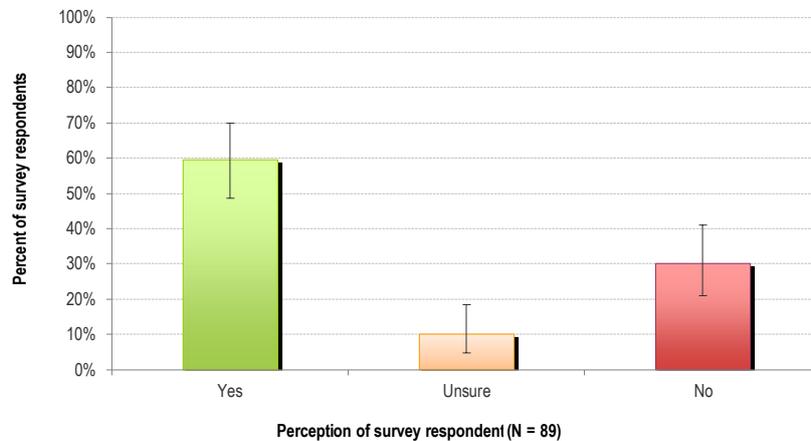
**Figure 7-9: Percent of staff aware of ED Quality Standards**



**Figure 7-10: Percent of staff aware of their ED Quality Team**



**Figure 7-11: Percent of staff aware of their ED quality improvement priorities**



## 7.3 Information shared to promote quality improvements

### 7.3.1 DATA REPORTED BY PARTICIPATING HOSPITALS

A variety of sources of information were collected and shared with ED staff to promote quality improvements. In addition to quarterly reporting to ECI, methods of information collection and dissemination varied across sites (Table 7-2). The most frequently reported methods of sharing information included:

- Multi-disciplinary quality team meetings (19 sites);
- M&M meetings (17 sites);
- Training courses or staff education (16 sites);
- Hospital data management systems (15 sites);
- Standardised templates or operating procedures (14 sites);
- Tailored data collections (13 sites);
- Presentations to ED staff (13 sites);
- Audit calendars and registers (12 sites);
- Working groups within and external to ED (11 sites);
- Committee meetings and ward meetings (10 sites); and
- Clinical or other procedural guidelines (10 sites).

On average, hospitals reported using around 13 different methods of information sharing to promote awareness of quality and safety issues and/or provide feedback to staff.

**Table 7-2: Methods of information collection and dissemination**

Method of information dissemination	Bankstown	Coffs Harbour	Concord	POW	SCH	Gosford	Calvary Mater	RNSH	RPA	Liverpool	Canterbury	Lismore	St Vincent's	Tweed	Wyong	Westmead	Campbelltown	Tamworth	CHW	Orange	No. of hospitals
Multi-disciplinary quality team meetings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	19
M&M meetings	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		17
Training courses / education	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓			16
Firstnet / IIMs / Local systems	✓	✓		✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓		✓		15
Standardised templates / SOP		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓		✓			14
Data collection		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓		✓			✓	13
Presentations	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓			✓	✓				13
Audit calendar / register	✓			✓		✓	✓	✓	✓	✓	✓		✓		✓	✓				✓	12
Working groups within / external to ED	✓	✓	✓	✓	✓	✓		✓	✓			✓	✓					✓			11
Committee meetings / ward meetings		✓	✓	✓	✓		✓	✓	✓	✓			✓	✓							10
Guidelines		✓		✓	✓	✓	✓			✓				✓	✓			✓		✓	10
Minutes	✓	✓	✓	✓			✓		✓			✓	✓		✓						9
Agendas	✓	✓	✓	✓			✓		✓			✓	✓								8
Posters / Flyers / Noticeboards / Whiteboards		✓	✓		✓					✓				✓		✓		✓		✓	8
Staff survey / feedback		✓	✓					✓	✓	✓	✓	✓						✓			8
Patient survey / feedback			✓	✓	✓			✓	✓	✓											6
Whole of hospital data reporting / initiatives	✓	✓				✓		✓						✓		✓					6

Method of information dissemination	Bankstown	Coffs Harbour	Concord	POW	SCH	Gosford	Calvary Mater	RNSH	RPA	Liverpool	Canterbury	Lismore	St Vincent's	Tweed	Wyong	Westmead	Campbelltown	Tamworth	CHW	Orange	No. of hospitals	
Checklists (training / orientation / safety induction)	✓	✓			✓	✓	✓															5
Quality project register				✓						✓	✓							✓	✓			5
Terms of Reference		✓	✓	✓	✓		✓															5
Competency register / credentialing					✓	✓									✓	✓						4
Email			✓	✓					✓					✓								4
Ethics committee			✓	✓	✓														✓			4
Intranet		✓	✓												✓		✓					4
One on one supervision / observation	✓	✓			✓						✓											4
Orientation booklet / manual	✓	✓				✓								✓								4
Performance dashboards	✓							✓					✓	✓								4
Attendance registers	✓	✓						✓														3
Mobile electronic devices (IPADs / PET)					✓					✓								✓				3
Networking with other QSOs			✓				✓					✓										3
Online training / orientation modules						✓								✓		✓						3
Education Program calendar	✓					✓																2
Fact sheets		✓																✓				2
In-services	✓					✓																2
Newsletter	✓														✓							2

Method of information dissemination	Bankstown	Coffs Harbour	Concord	POW	SCH	Gosford	Calvary Mater	RNSH	RPA	Liverpool	Canterbury	Lismore	St Vincent's	Tweed	Wyong	Westmead	Campbelltown	Tamworth	CHW	Orange	No. of hospitals	
Phone calls				✓			✓															2
Evaluation of education programs	✓																					1
Issues log							✓															1
Job descriptions (competencies)	✓																					1
Journal Club											✓											1
Orientation CD	✓																					1
Orientation video							✓															1
Patient feedback												✓										1
Patient pamphlets																	✓					1
Quality awards	✓																					1
Reports for executive	✓																					1
Resource folders							✓															1
SMART goals (specific, measurable, achievable, realistic, timely)																	✓					1
Walking tours							✓															1
<b>Number of methods per hospital</b>	22	21	17	17	17	16	15	13	13	12	11	11	11	11	11	10	9	8	4	4		

### 7.3.2 PERCEPTIONS OF QUALITY TEAM MEMBERS

The information disseminated to staff about local quality improvement projects varied across different hospitals and included staff feedback, audits, specific projects and process mapping. Quality team members reported that it was **crucial to be able to identify and collect information that was relevant and meaningful to staff**, particularly where anecdotal perceptions of performance differed from other more objective sources of information.

*“A key part of the role was getting the data into a form that showed a picture. Numbers are very effective in getting change in practice. Numbers belie anecdotal evidence and beliefs.”*

The **QSOs were reported to be efficient and very effective at extracting data** from hospital information systems (e.g., FirstNet) and presenting it in a form that was easily understood and clinically relevant to other staff.

*“The QSO in the position had a perfect mix of skills including a sound understanding of the FirstNet Database and research skills.”*

The benefits of **broadening the membership of the quality team** as a means of further disseminating the quality message across the ED was also commented on by a number of sites. It was noted that this forum afforded all attendees an equal opportunity to participate and suggest new quality ideas.

*“The first thing [the QSO] did was establish a multidisciplinary quality team for the ED and despite some initial scepticism, it was quickly received with great enthusiasm. People soon learned that it was a forum that they could attend and be heard.”*

*“[The QSO] actively kept in touch with all those that were doing the projects so that they maintained momentum.”*

### 7.3.3 PERCEPTIONS OF QSOS

QSOs noted that successful attempts to engage the wider ED staff occurred when there was **solid support from ED executive members**.

*“A lot of what we were able to achieve was due to the open door support from the CNC.”*

Whilst QSOs with a clinical background were perceived to have more credibility with ED staff the **effective use of data was considered to be more important** as a tool for driving change.

*“An outstanding element from the project requires outside IT support.”*

*“Showing people the data it has become much better. There is a team approach to the projects that include doctors, nurses and clerical staff with data driving the project.”*

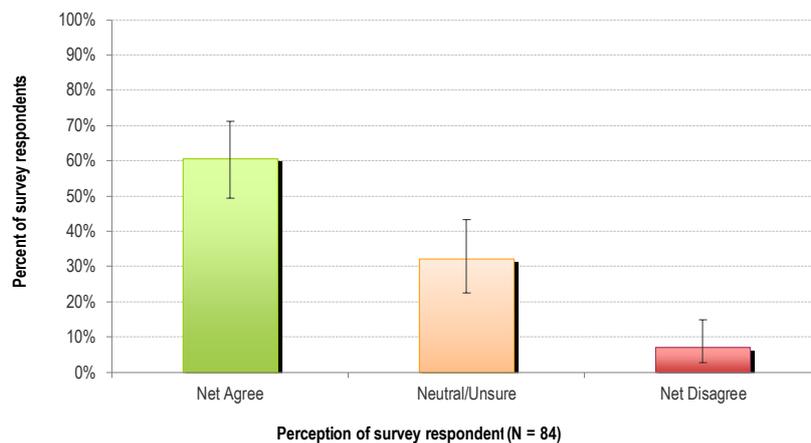
*“Getting the data into a form that showed a picture, numbers are very effective in getting change in practice.”*

### 7.3.4 PERCEPTIONS OF OTHER STAFF WORKING IN THE ED

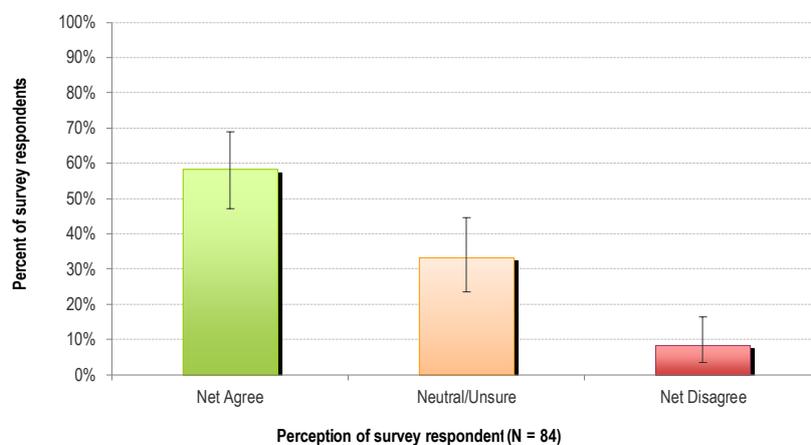
Staff awareness about information relating to ongoing quality improvement activities was positive. Following implementation of the project, the majority of staff reported being aware of information indicating:

- More frequent clinical audits (Figure 7-12);
- More frequent incident reviews (Figure 7-13); and
- More frequent quality projects (Figure 7-14).

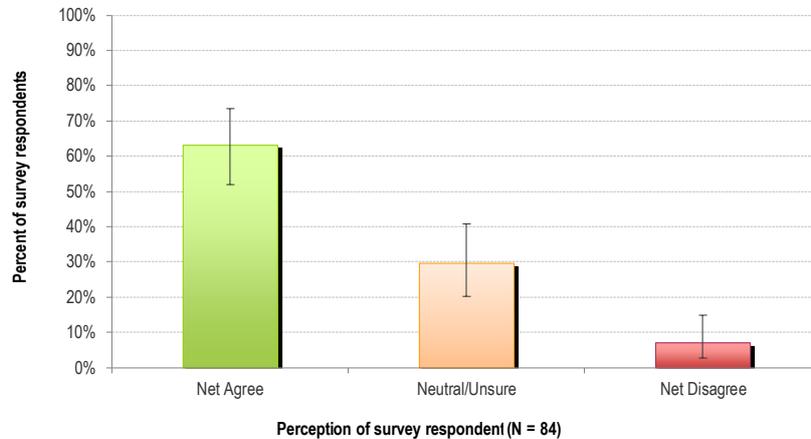
**Figure 7-12: Percent of staff aware of more frequent clinical audits**



**Figure 7-13: Percent of staff aware of more frequent incident reviews**



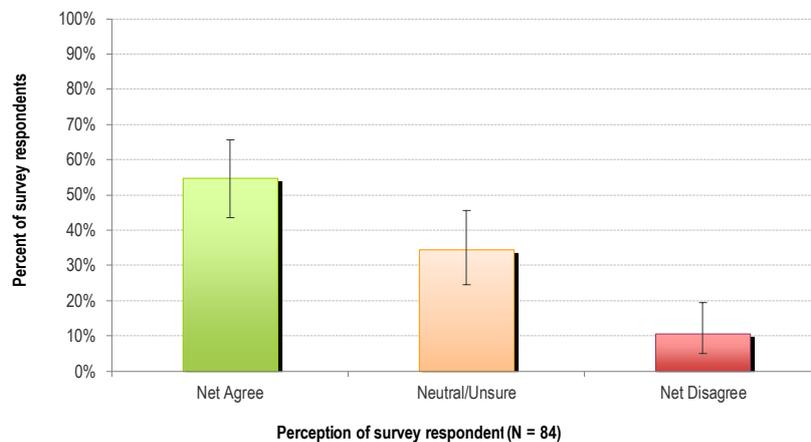
**Figure 7-14: Percent of staff aware of more frequent quality projects**



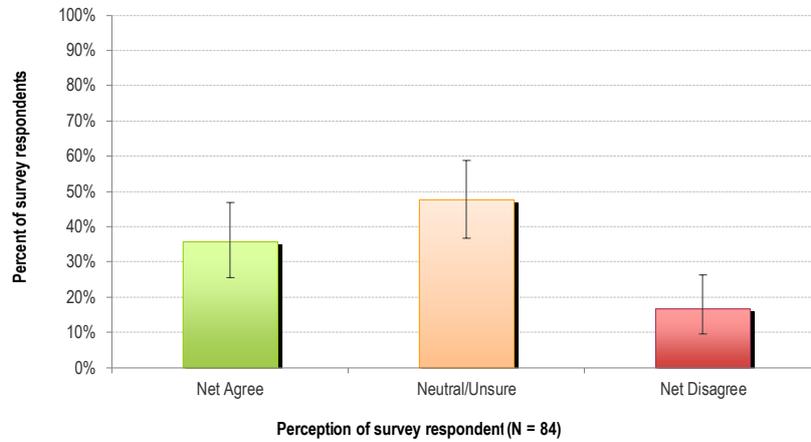
However, the majority of staff members were uncertain about information that suggested improvements in other areas targeted for quality improvement, including:

- More regular reviews of morbidity and mortality in the ED (Figure 7-15);
- more appropriate ordering of medical imaging (Figure 7-16); and
- More appropriate pathology testing (Figure 7-17) within the ED.

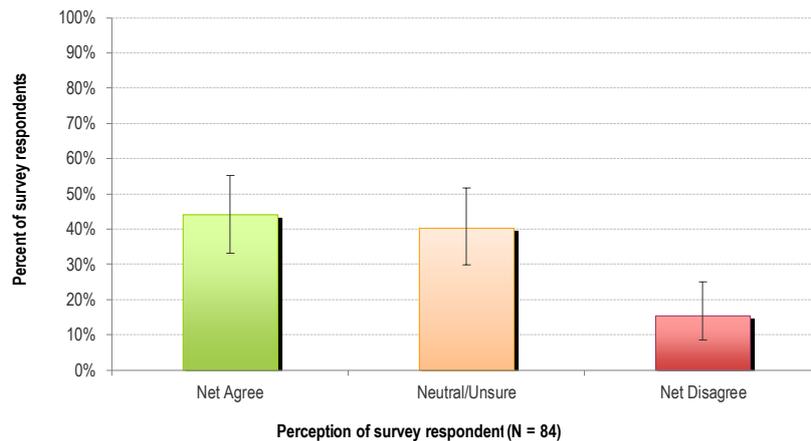
**Figure 7-15: Percent of staff aware of more regular morbidity/mortality reviews**



**Figure 7-16: Percent of staff aware of more appropriate ordering of imaging**



**Figure 7-17: Percent of staff aware of more appropriate ordering of pathology**



## 7.4 Levels of staff engagement

### 7.4.1 DATA FROM PARTICIPATING HOSPITALS

There was no formal data reported by participating hospitals in relation to levels of staff engagement with quality and safety activities undertaken in the ED.

### 7.4.2 PERCEPTIONS OF QUALITY TEAM MEMBERS

Quality Team members were consistent in their view that **quality and safety should be an integral consideration of everyone** working in the ED.

*“Quality is part of every staff member’s role”*

It was also recognised that **a sustainable safety culture needed to be built in a ‘bottom-up’ fashion** by encouraging the involvement of all staff members, rather than attempting to externally impose any changes in behaviour. Notwithstanding, it was considered essential to have **acceptance and buy-in from senior management across the department** in order to foster and support broader change in staff awareness, attitudes and behaviour.

The **overall level of staff engagement in the Project was reported to be “good”**. Examples demonstrating change in the attitudes and behaviour of staff included junior medical staff becoming engaged in managing projects and benefiting from seeing the ‘bigger picture’ impacts of specific quality initiatives.

*“Nursing Management were actively involved in an ongoing capacity, in particular the clinical nurse consultant. Medical staff were the most engaged in the project with Senior Medical Staff highly engaged and Junior Medical Staff becoming more engaged due to the opportunity to gain support for their activities.”*

*“[There was] good engagements from all staff and all levels.”*

Other hospitals reported creating journal clubs to further examine issues relating to quality and safety in the ED.

*“The journal club meets monthly but [we] discusses the same 2 articles for 2 months in a row, [it has] has been an excellent project. It is attended by multidisciplinary staff and they discuss whatever the staff feel is topical.”*

As previously reported, one site to formalised engagement of nursing staff in safety and quality projects as part of a Master’s degree. This was considered to have a number of benefits to the ED, including:

- Building knowledge and development of staff through dedicated research;
- Fostering collaboration and teamwork; and
- Reinforcing the value of formalised processes for ensuring systemic approach to quality improvement.

*“The linking of the quality projects with the masters projects has meant that there is real buy-in, personal incentive for the work to get done which benefits the department at the same time”*

*“[It’s a] small team in a small hospital with limited resources – everyone is keen to do anything that may improve the way things are done.”*

#### 7.4.3 PERCEPTIONS OF QSOS

One of the specific roles of the QSOs was to foster staff engagement and build the capacity of ED staff to participate in quality and safety projects. Feedback from the QSOs indicated that **staff members were actively engaged in the implementation**.

*“Staff were keen to be involved.”*

*“The QSO role has had a very positive impact on medical staff. Senior Medical Officers have involved the Junior Medical Officers in an ongoing quality improvement program. Through liaison with the QSO and MO's projects are identified, established conducted and evaluated during each JMO rotation.”*

*“Staff are always keen on improving their practice, however, having the QSO can provide the time and tools necessary to achieve positive change.”*

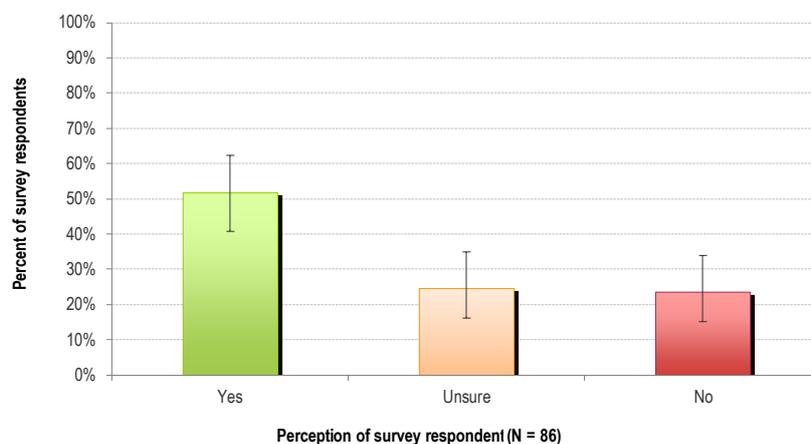
Importantly, **high levels of engagement were reported to have occurred across junior and senior clinical staff** in both medical and nursing professions.

*“Implementation of JMO quality project - each rotation given various quality improvement activities to undertake.”*

*“Nursing Management were actively involved in an ongoing capacity, in particular the clinical nurse consultant. Medical staff were the most engaged in the project with Senior Medical Staff highly engaged and Junior Medical Staff becoming more engaged due to the opportunity to gain support for their activities.”*

#### 7.4.4 PERCEPTIONS OF OTHER STAFF WORKING IN THE ED

**Figure 7-18: Percentage of staff regularly contributing to ED quality activities**



## 7.5 The impact of quality and safety activities

The overall impact of quality and safety activities upon compliance with the ED Quality Standards implemented across the 23 hospitals is presented in Table 7-3. An examination of

individual ED Quality Standards following early self-assessment across hospitals<sup>17</sup> indicated that the lowest levels of self-reported compliance occurred in areas relating to:

- Auditing of procedural complications (19%);
- Partnering with consumers (19%);
- Having a designated Quality Team (25%);
- Research funding and recognition (e.g., awards 19% and grants 31%);
- Auditing of pathology (31%);
- Research presentations (38%) and appointments (44%); and
- Auditing of medical imaging (44%).

The average level of compliance across each of the individual ED Quality Standards was 63% prior to implementation of quality and safety activities in each of the participating hospitals (minimum 19% for 'auditing of procedural complications', 'research awards' and 'partnering with consumers'; maximum 100% for 'student teaching and training'). Following implementation of quality and safety activities, the average level of self-reported compliance across all ED Quality Standards increased to 76% (minimum 19% for 'partnering with consumers'; maximum 100% for 'student teaching and training', 'professional development activities' and 'regular morbidity and mortality reviews').

Thus there was an average 13% improvement in compliance across all ED Quality Standards by hospitals implementing local quality and safety activities.

ED Quality Standards demonstrating the greatest level of change following implementation of quality and safety activities included a:

- 56% improvement in auditing of pathology (to 88%);
- 50% improvement in auditing of medical imaging (to 94%);
- 50% improvement in having a designated Quality Team (to 75%);
- 44% improvement in auditing of procedural complications (to 63%); and
- 44% improvement in regularity of morbidity and mortality reviews (to 100%).

---

<sup>17</sup> Note that percentages were only calculated for hospitals where sufficient data existed prior to and following implementation of local quality and safety activities (n = 16).

**Table 7-3: Comparison of ED Quality Standards prior to and following Project implementation at 23 participating hospital EDs**

QUALITY STANDARDS	Hospital Sites																					Summary of Standards					
	RPAH	Calvary Mater	Tweed	POW	Coffs Harbour	Canterbury	St Vincent's	RNSH	SCH	Lismore	Concord	Liverpool	Bankstown	CHW	Campbelltown	Westmead	Dubbo**	Maitland**	Orange**	Sutherland**	Tamworth**	*Wyong	*Gosford	Pre-project compliance	No. of quality activities	Post project compliance	Change in compliance
Clinical Profile	Audit of pathology	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	35%	9	74%	<b>39%</b>
	Audit of medical imaging	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	43%	8	78%	<b>35%</b>
	Audit of procedural complications	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					✓	✓	✓	22%	7	52%	<b>30%</b>
	Regular mortality and morbidity meetings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	65%	7	96%	<b>30%</b>
	Regular clinical audits	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	70%	3	83%	<b>13%</b>
	Audit of medication errors*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	65%	3	78%	<b>13%</b>
	Involvement in whole of hospital initiatives	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	78%	3	91%	<b>13%</b>
	Participation in national registries submission of data to jurisdictional / national registries relevant to hospital profile – attach list of registries and schedule of data submission	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	74%	2	83%	<b>9%</b>
	Guidelines for orientation to the emergency department	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	74%	1	78%	<b>4%</b>
	Participation in the clinical indicator collection	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	65%	0	65%	<b>0%</b>
Education & Training Profile	Departmental educational program including regular meetings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	57%	2	65%	<b>9%</b>	
	Presence of Director of Emergency Medicine Training	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	70%	2	78%	<b>9%</b>	
	Instructors for accredited training courses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	65%	2	74%	<b>9%</b>	
	Staff who have completed accredited training courses	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	78%	2	87%	<b>9%</b>	
	Departmental educational roles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	83%	2	91%	<b>9%</b>	
	Academic emergency appointments	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	70%	1	74%	<b>4%</b>	
	Student teaching and training in multiple disciplines	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	87%	0	87%	<b>0%</b>	
	Participation by staff in scientific and professional association meetings including hosting, attendance	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	83%	0	83%	<b>0%</b>	
	Collaboration with educational institutions across multiple disciplines	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	70%	0	70%	<b>0%</b>	
	Participation by staff in CPD including in clinical governance and quality improvement training	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	91%	0	91%	<b>0%</b>	
	Credentialing of staff	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	70%	0	70%	<b>0%</b>	
	Staff competencies	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	87%	0	87%	<b>0%</b>	
	Participate in multidisciplinary, interdepartmental and pre-hospital & retrieval education	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	70%	0	70%	<b>0%</b>	

QUALITY STANDARDS	Hospital Sites																				Summary of Standards								
	RPAH	Calvary Mater	Tweed	POW	Coffs Harbour	Canterbury	St Vincent's	RNSH	SCH	Lismore	Concord	Liverpool	Bankstown	CHW	Campbelltown	Westmead	Dubbo**	Maitland**	Orange**	Sutherland**	Tamworth**	*Wyong	*Gosford	Pre-project compliance	No. of quality activities	Post project compliance	Change in compliance		
<b>Research</b>	Academic emergency appointments	✓		✓			✓		✓		✓	✓	✓	✓	✓	✓			✓	?	✓	✓		43%	4	61%	<b>17%</b>		
	Research grants	✓		✓			✓		✓		✓	✓	✓	✓	✓	✓			✓	✓	✓			52%	3	65%	<b>13%</b>		
	Research awards			✓	✓	✓		✓		✓		✓	✓	✓	✓	✓	✓				✓			48%	2	57%	<b>9%</b>		
	Research projects (internal and external to the department)								✓			✓			✓	✓								13%	1	17%	<b>4%</b>		
	Research presentations at scientific meetings (including 4.10 poster, and oral presentations)	✓						✓	✓		✓	✓	✓	✓	✓	✓							✓	39%	1	43%	<b>4%</b>		
	Publications by emergency department staff			✓			✓	✓	✓			✓	✓	✓	✓	✓	✓				✓	✓	✓	48%	1	52%	<b>4%</b>		
	Uptake of research outcomes								✓			✓	✓	✓	✓	✓	✓				✓	✓		30%	0	30%	<b>0%</b>		
<b>Administration</b>	A designated Quality Team	✓		✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	39%	8	74%	<b>35%</b>		
	Regular audits	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	65%	5	87%	<b>22%</b>		
	Risk management	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	74%	2	83%	<b>9%</b>		
	Financial considerations		✓	✓	✓		✓	✓			✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	52%	2	61%	<b>9%</b>		
	Equipment considerations:	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	74%	1	78%	<b>4%</b>		
	Workforce considerations as per G23	✓	✓	✓	✓			✓			✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	65%	0	65%	<b>0%</b>		
	Partnering with consumers		✓										✓		✓				✓	✓	✓			26%	0	26%	<b>0%</b>		
<b>Professional Profile</b>	Participation of staff in the work of some or all of the following through committee membership, workshops, provision of feedback and / or submission	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓		78%	0	78%	<b>0%</b>			
	Other	✓												✓									0%	2	9%	<b>9%</b>			
<b>Summary of Hospitals</b>	Pre-project compliance with standards	59%	46%	64%	54%	44%	31%	38%	77%	59%	49%	74%	79%	59%	92%	95%	90%	54%	64%	69%	79%	87%	*	*					
	Number of quality improvement activities	8	7	7	6	6	6	6	5	5	4	4	3	3	1	0	0	**	**	**	**	**	**	10	6				
	Post project compliance with standards	79%	64%	82%	69%	59%	46%	54%	90%	72%	59%	85%	87%	67%	95%	95%	90%	**	**	**	**	**	**	*	*				
	<b>Change in compliance with standards</b>	<b>21%</b>	<b>18%</b>	<b>18%</b>	<b>15%</b>	<b>15%</b>	<b>15%</b>	<b>15%</b>	<b>13%</b>	<b>13%</b>	<b>10%</b>	<b>10%</b>	<b>8%</b>	<b>8%</b>	<b>3%</b>	<b>0%</b>	<b>0%</b>	<b>**</b>	<b>**</b>	<b>**</b>	<b>**</b>	<b>**</b>	<b>*</b>	<b>*</b>					

Note: ✓ Denotes compliance with standard at the commencement of project implementation (pre-project); ✓ Denotes compliance with standard at the end of project implementation (post-project). \*\* Denotes an absence of post-implementation data (in reports submitted to the ECI) to enable effective comparison. \* Denotes an absence of early/pre-implementation data (in reports submitted to the ECI) to enable effective comparison.

## 7.6 Hospital level improvements in ED Quality Standards

An examination of individual hospital EDs following early self-assessment across each of the 39 standards indicated that the lowest levels of self-reported compliance occurred at:

- Canterbury Hospital (31%);
- Coffs Harbour Hospital (44%); and
- Lismore Hospital (49%).

All other hospitals reported achieving greater than 50% compliance across all ED Quality Standards. The highest levels of baseline compliance were reported by:

- Children's Hospital at Westmead (95%);
- Campbelltown Hospital (95%); and
- Westmead Hospital (90%).

The average level of compliance across each of the participating hospitals was 63% prior to implementation of quality and safety activities to improve ED quality standards. Following implementation of quality and safety activities, the average level of self-reported compliance across hospitals increased to 75% (minimum 49% for Canterbury Hospital; maximum 95% for Children's Hospital Westmead).

Thus there was an average 11% improvement in hospital compliance with ED Quality Standards for sites involved in implementing local quality and safety activities.

Hospitals demonstrating the greatest level of change following implementation of quality and safety activities included a:

- 21% improvement at Royal Prince Alfred Hospital (to 79%);
- 18% improvement at Canterbury Hospital (to 49%);
- 18% improvement at Tweed Hospital (to 82%);
- 15% improvement at Prince of Wales Hospital (to 69%);
- 15% improvement at Coffs Harbour Hospital (to 59%); and
- 15% improvement at St Vincent's Hospital (to 54%).

Further analysis was undertaken using 14 hospitals that had reported baseline compliance with the ED Quality Standards, implemented one or more quality and safety activities, and measured the impact of these activities upon follow-up compliance with the ED Quality Standards. The median baseline compliance with the Quality Standards was 23/39. At follow-up the median level of compliance had increased to 28/39. Thus, following the implementation of local quality and safety activities<sup>18</sup>:

---

18 Based on Wilcoxon Signed Rank Test of paired differences (calculated by: post implementation compliance score – pre implementation compliance score). Median difference = 5.07.

There was a significant improvement in compliance with the ED Quality Standards across hospitals participating in the Project (Wilcoxon  $Z = 105.0$ ,  $p = 0.001$ ).

#### 7.6.1 PERCEPTIONS OF QUALITY TEAM MEMBERS

There was general agreement that the project had led to improvements across the ED. QSOs were reported to **raise staff awareness** that quality goes beyond M&M meetings.

*“Previously, quality was limited to M&M meetings and triage audits and since QSO position ended no M&M meetings have been held.”*

The framework was seen as especially useful in **providing a structure to promote quality** systems.

*“The project has been a part of the overall quality system, an opportunity to pose and answer questions and focus on ED specific quality priorities based on the data being produced.”*

Improved quality systems have in turn resulted **improvements in patient flow** through the ED and the capacity to meet performance targets.

*“The flow on effects from the quality projects has meant that patient flow has improved and [hospital] has been recognised by the Minister for their improvement against the NEAT.”*

#### 7.6.2 PERCEPTIONS OF QSOS

QSOs considered the project and framework to be a crucial **method for focussing on quality** issues in an area where clinical priorities demand immediate attention.

*“It provided a structure to review our existing processes to ensure positive patient outcomes were achieved. Audits were not regularly performed and a quality culture was not evident to the staff.”*

The Project was reported to provide an additional resource to **support and incentivise other members of the ED** team to re-capture a quality focus.

*“[It allowed an] extra resource to work on long standing ED quality issues with pathology and radiology turnaround times.”*

*“Medical Staff had limited opportunity to become involved in quality improvement activities in the department due to lack of resources. The quality framework enabled them identify and focus on key areas in the department and service provision.”*

#### 7.6.3 PERCEPTIONS OF OTHER STAFF WORKING IN THE ED

Other staff working in the ED reported observing a number of ‘differences’ following implementation of their local ED Quality Framework Project. A number of staff noted

**improvements in auditing** which had resulted in an enhanced quality focus and a reduction in identified errors occurring in the ED.

*"[There is a] higher compliance with all of the processes/procedures we have audited. Improved time to analgesia, improved handover processes."*

*"Improved patient care and streamlining of practices. Less errors."*

Others noted that **staff members were more interested, willing and confident** to become involved in ongoing quality improvement activities in order to enhance outcomes for staff and patients.

*"Staff are more willing to take responsibility for initiating and sustaining quality improvements."*

*"[There is an] interest in quality projects from med students, junior nursing and med staff and up."*

*"An increased confidence amongst staff to undertake quality activities to improve departmental processes and patient outcomes."*

**ED staff members were aware of improvements** in outcomes associated with specific quality activities undertaken as part of the project, for example:

*"Greater awareness of septic patients and need for timely interventions."*

*"More awareness of quality projects and improved patient care."*

*"Ongoing improvements in correct specimen labelling. Introduction of review process and feedback loop for reviewing deaths in the ED."*

Specific improvements in project activities dedicated to towards more **appropriate ordering of tests** in the ED were also reported.

*"More appropriate pathology testing."*

*"Reduction in test ordering."*

*"Starting to see reduction in test ordering."*

Others commented on more **general improvements in safety culture and processes** within the ED that had led to a range of more specific outcomes.

*"I am in a leadership role across the LHD; our ED collaborative meetings have a better focus and discussion following the introduction of the program."*

*"Establishment of a quality committee, although this has more been driven by the department, than by the quality framework."*

*"Regular M&M meetings, revitalisation of death audit database, monitoring of regular audit activities, reporting of audit results, quality activities as part of teaching and*

*professional development, involvement of consumer rep in department activities, coordination of patient management plans.”*

The project was reported to result in **improved communication** between ED staff.

*“More efficient communication with wards-men.”*

*“Better communication between wards person & clinical staff.”*

*“Lots more clinical auditing and feedback to staff.”*

Improvements in **multidisciplinary collaboration** to improve quality and safety outcomes were also reported.

*“Also more awareness of the ED quality forum and how to raise concerns and ideas to improve patient outcomes.”*

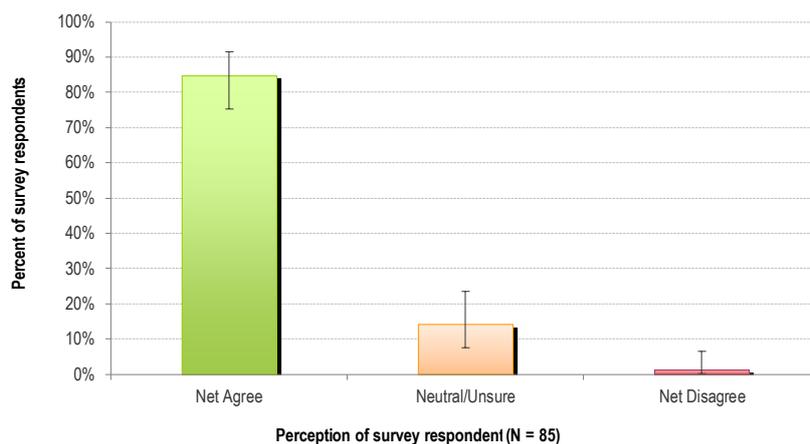
*“Inclusion of more multidisciplinary elements to working groups. Generation of good suggestions and ideas. Shared workload.”*

*“Increased involvement of medical officers.”*

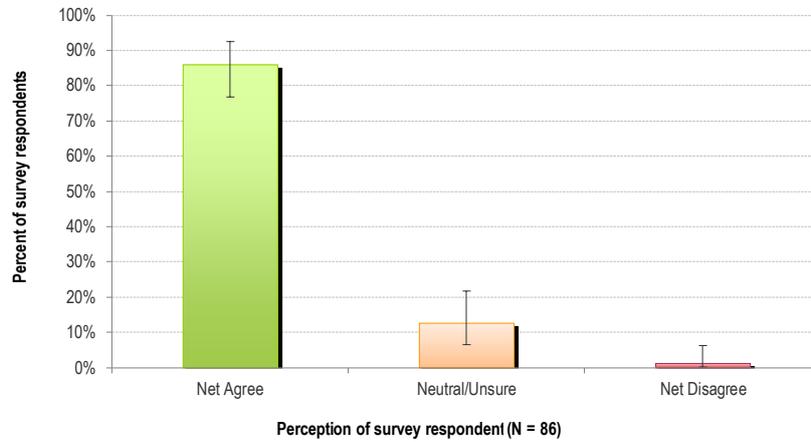
*“Medical and Nursing attendance and involvement in presenting M&M.”*

The majority of other staff working in the ED perceived that the Project was likely to have **broader benefits to the health system** by driving continuous quality improvement (Figure 7-19), improving the quality (Figure 7-20) and consistency (Figure 7-21) of service provision, and ultimately, protecting the public from harm (Figure 7-22).

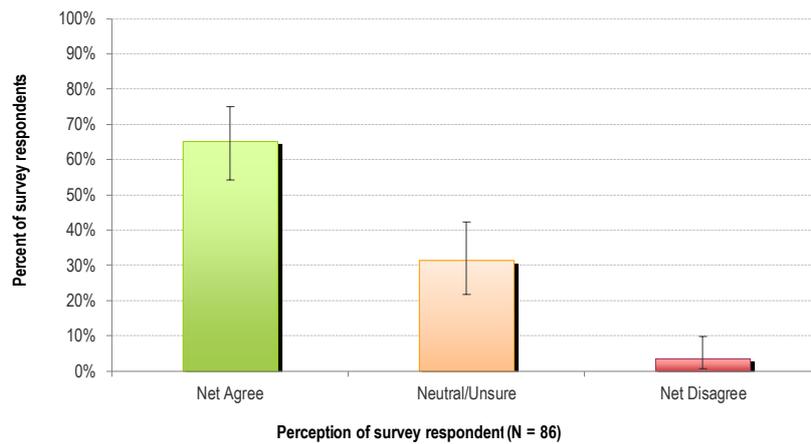
**Figure 7-19: The ED Quality Project is likely to drive continuous improvement**



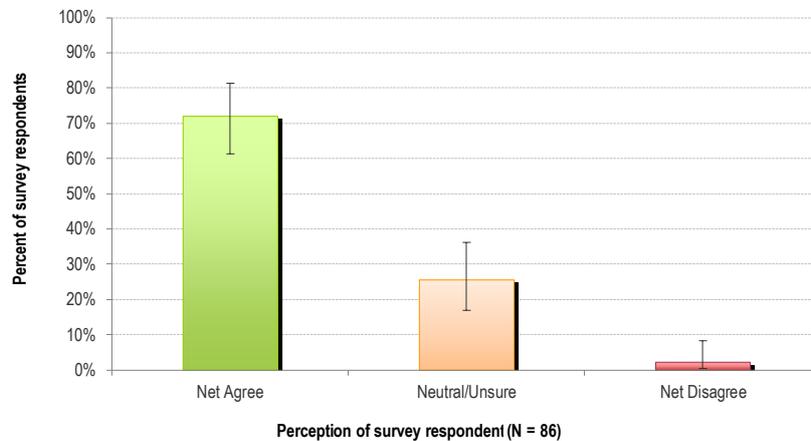
**Figure 7-20: The Quality Project is likely to improve the quality of ED services**



**Figure 7-21: The Quality Project is likely to increase the consistency of ED services across NSW**



**Figure 7-22: The ED Quality Project is likely to protect the public from harm**



## 7.7 Factors promoting future sustainability

The ongoing sustainability of Project outcomes was an area of concern to all Quality Teams who were interviewed as part of the evaluation. A number of factors were considered to be highly important in sustaining the momentum to focus upon quality within EDs, in addition to the outcomes achieved to date from funded Projects.

The ongoing **capacity to fund QSOs** and other resources that enable ED staff to focus on quality and safety improvements was considered paramount by a number of Quality Teams, for example:

*“In order for ED's to implement and maintain quality patient care initiatives there needs to be dedicated QSO. There is increasing governance requiring mandatory compliance, increasing workloads ED's are struggling with day to day business and politics, new departmental quality initiatives are difficult to raise off the ground. Without additional funding there is no current capability to support the QSO position.”*

*“Nothing has happened since the position ceased to be available.”*

Several hospitals indicated that, despite demonstrated savings through the quality initiatives undertaken during the ED Quality Framework project, hospital administration was not sufficiently **convinced to provide ongoing funding** for any part time QSO position. However, as shown below, while QSO were important in establishing the quality culture there may be other approaches to ensure that the focus on quality continues.

*“It was very disappointing to have such a good impact and savings and then to have the resource taken away despite capacity to make greater savings and efficiencies.”*

*“There is a definite capacity to make savings in other areas. The QSO role is pivotal to the success of this project. The Framework provided a capacity to professionally present ED quality data the evidence is very strong.”*

Ultimately, Quality Teams considered that the ongoing sustainability of outcomes arising from the project was dependent upon the capacity to **integrate safety and quality systems in the ED with those operating in other areas of the hospital**.

*“Quality needs to be driven by a quality committee with a quality action plan as a tool that captures accountabilities.”*

*“The framework aligns well with accreditation and quality frameworks already in place.”*

By integrating activities into the existing structures and processes operating within the hospital, opportunities could be created for **shared learning and uptake of quality initiatives across the broader hospital and ongoing support** for continuous quality improvement within the ED. Examples included quality improvement structures, quality project registers, performance monitoring, and consumer engagement.

*“Regular structured quality team meetings with feedback.”*

*“Developing a Quality project data base, and staff being aware of this, will allow the notion of “quality” to continue in our ED.”*

Other factors promoting sustainability included commitment from senior staff and multidisciplinary teams.

*“Having an enthusiastic and committed quality team.  
A team that embraces change and strives for better outcomes for staff and patient’s.  
Introducing and meeting with the people that can help with your projects.  
Providing staff feedback.”*

## 7.8 Overall summary of the effectiveness of the Project

### 7.8.1 SUMMARY OF OUTCOMES

In aggregate, the range of activities implemented by different hospitals was reported to have a significant impact upon the standard of quality and safety within the ED. Following initial assessment, implementation of local quality and safety activities, and re-assessment by participating hospitals:

There was a significant improvement in compliance with the ED Quality Standards across NSW public hospitals participating in the Project

*(Wilcoxon  $Z = 105.0$ ,  $p = 0.001$ ).*

The appointment of QSOs was considered to be a crucial factor. QSOs were able to support the assessment of local needs, identification of high priority projects, and foster staff awareness and willingness to participate in ED quality and safety activities. Timely and relevant feedback to ED staff members was observed to further enhance staff awareness and involvement, and promote a genuine culture of continuous quality improvement. As a result, a significant majority of staff working in the participating EDs considered that there were:

More opportunities to focus on quality improvement

Better documentation of quality activities

Improved staff preparedness to work on quality activities

More importantly, a significant majority of staff working in participating EDs considered that the QSO position had: made a positive difference to quality improvement within their health service; was a valuable use of resources; and was worthwhile continuing into the future.

A significantly higher percentage of ED staff members were:

Aware of the aims and objectives of the Project

Aware of the Quality Standards for ED performance

Aware of other colleagues involved in their local Quality Teams

Aware of the activities required to improve local quality standards

The number and nature of activities implemented by individual hospitals varied. Almost all hospitals implemented the two projects mandated by the ECI, to improve the standardisation

of death reviews and appropriate ordering of tests. However, ED staff members were less aware of the outcomes associated with these projects.

Other quality and safety activities were tailored to local ED needs. For these activities, a significantly higher proportion of ED staff members were:

More aware of the frequency of clinical audits

More aware of the frequency of incident reviews

More aware of the number of quality activities

A significantly higher number of staff were also perceived to be actively involved in ongoing quality and safety initiatives following implementation of the Project in participating hospitals.

In relation to future benefits, a significant majority of staff working in the EDs of participation hospitals considered that:

The Project was more likely to drive continuous quality improvement

The Project was more likely to improve the quality of ED services

The Project was more likely to increase the consistency of ED services in NSW

The Project was more likely to protect the public from harm

Key drivers of Project success, derived from information gathered throughout the current evaluation are discussed in the following Chapter of this report.

## 7.8.2 KEY DRIVERS OF IMPROVEMENT

Based upon available data, a number of potential predictors of improvement in ED Quality Standards were investigated, including the number of reported: enablers, barriers, quality and safety activities, information sources used to communicate progress, and the number of months that the QSO was employed. Further replication and validation of the following findings is required, based upon an independent (and preferably) larger sample of individual hospitals adopting the ECI recommended approaches to ED quality and safety improvements.

Exploratory analysis of these variables identified two factors accounting for improvement in hospital performance, including; the **number of quality and safety activities** undertaken and, the **duration of employment of the QSO** at participating hospital sites (*Independent variables = 2, Mallow's Cp = 1.6, RSq = 70.2, Adj RSq = 64.8*). Subsequent analysis of these findings resulted in:

A prediction equation for identifying the likely improvements in compliance with ED Quality Standards after implementation of the ECI Project, which is estimated below:

*Compliance with ED Quality Standards = (-0.109 constant) + (0.0117 x Total Activities Implemented) + (0.0134 QSO months of employment).*

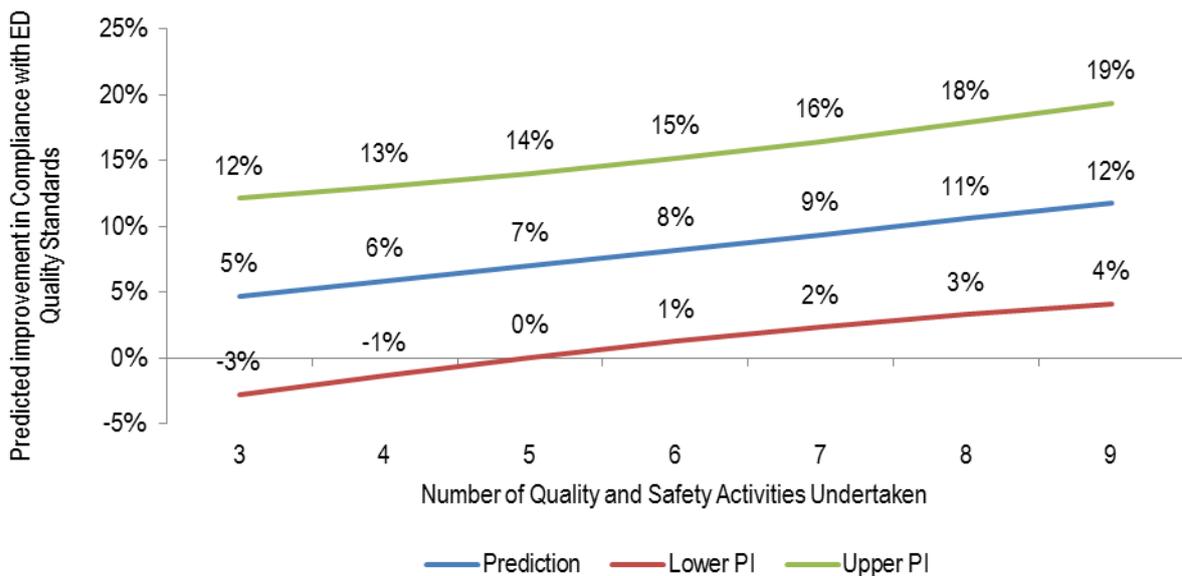
Results estimated according to this algorithm are likely to fluctuate within the 95% Prediction Intervals of the calculated equation. Variations in outcome are presented in the following figures according to the estimated length of employment of a QSO and the number of quality

and safety activities undertaken in any given ED (with similar characteristics to the current sample).

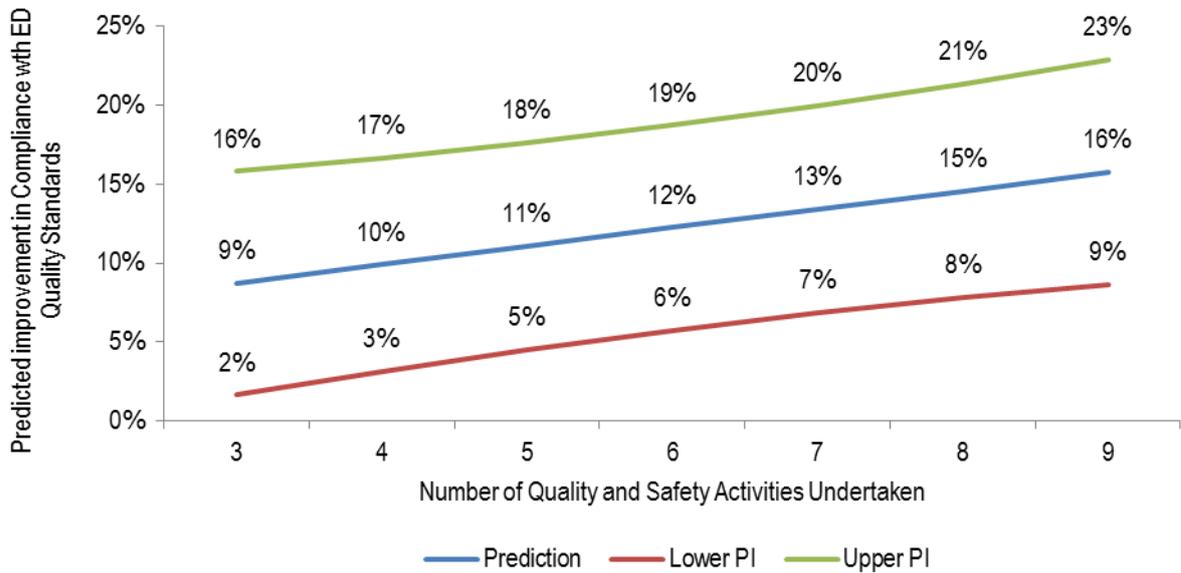
Figure 7-23 estimates an average improvement of around 8% in compliance with the ED Quality Standards where a QSO is employed for 9 months, and at least 6 quality and safety activities are completed. Individual hospitals can be 95% confident that the likely improvement will range from a low of 1% to as high as 15% compliance under this employment and activity profile.

Figure 7-24 estimates an average improvement of around 9% in compliance with the ED Quality Standards where a QSO is employed for 12 months, and at least 3 quality and safety activities are completed. Individual hospitals can be 95% confident that the likely improvement will range from a low of 2% to as high as 16% compliance under this employment and activity profile.

**Figure 7-23: Predicted improvement in ED Quality Standards (QSO 9 months)**

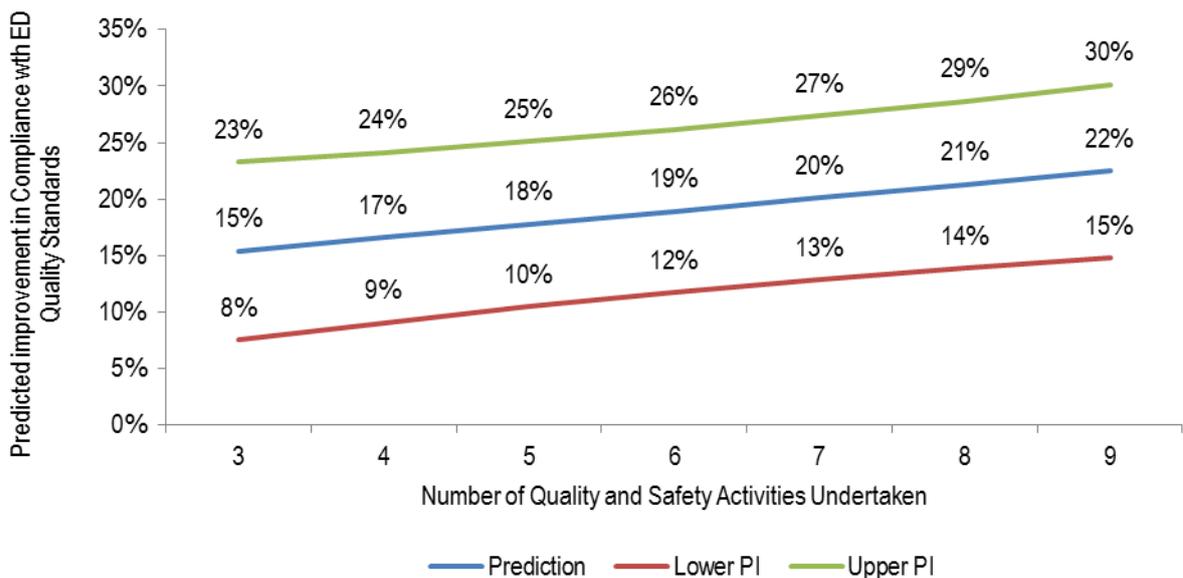


**Figure 7-24: Predicted improvement in ED Quality Standards (QSO 12 months)**



Finally, Figure 7-25 estimates an average improvement of around 15% in compliance with the ED Quality Standards where a QSO is employed for 17 months, and at least 3 quality and safety activities are completed. Individual hospitals can be 95% confident that the likely improvement will range from a low of 8% to as high as 23% compliance under this employment and activity profile.

**Figure 7-25: Predicted improvement in ED Quality Standards (QSO 18 months)**



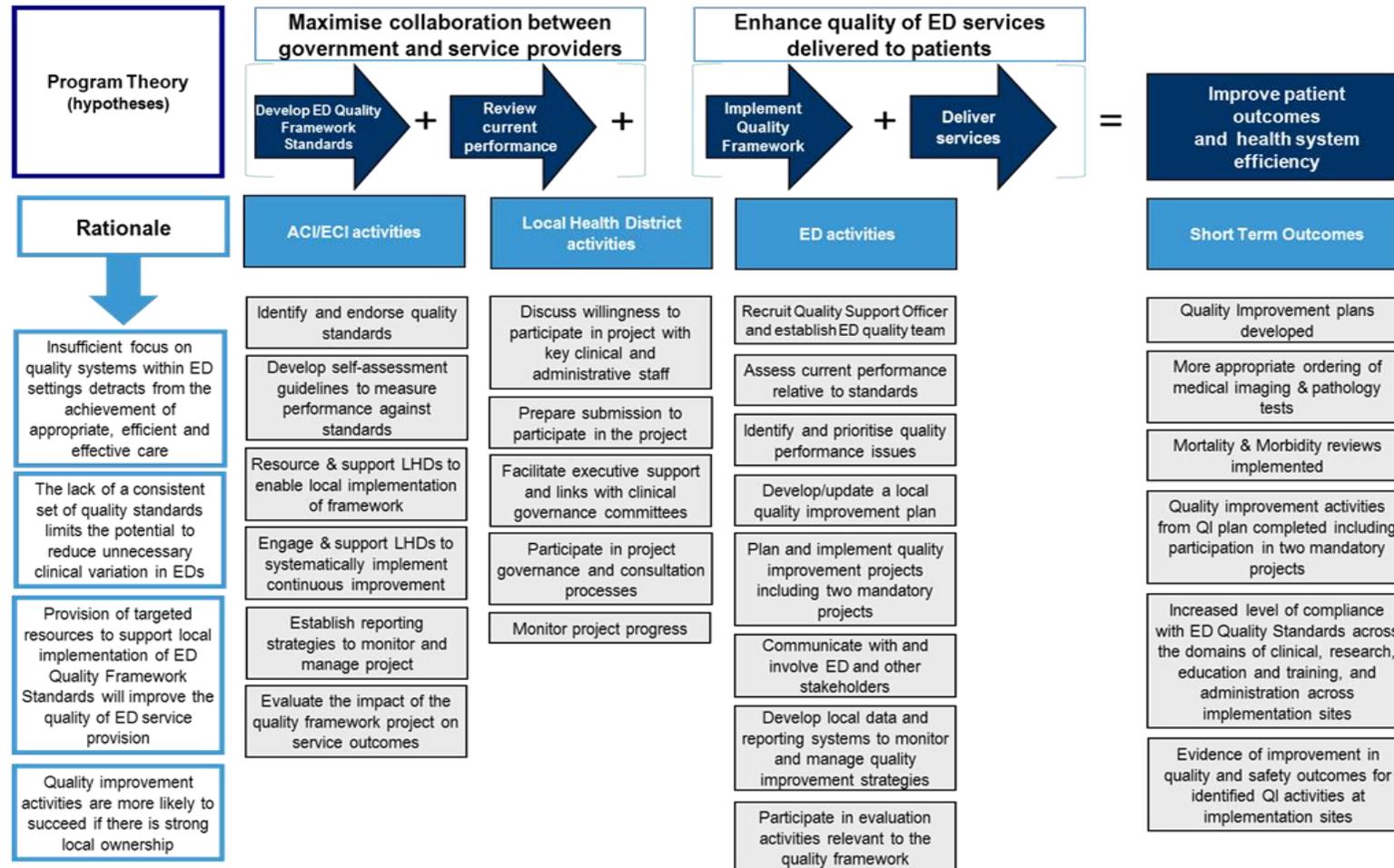
Thus, the longer the period of employment of a QSO, the fewer quality and safety activities need be completed in order to achieve at least an 8% improvement in compliance with the ED Quality Standards, the greater the length of employment and the more activities undertaken are predicted to result in even higher levels of Quality Standards within the ED. These estimates should assist any future business case for commencing or maintaining employment of a QSO position within the ED (according to the parameters of the modelling that has been performed).

## 8 Summary of evaluation findings

Overall, the ED Quality Framework Project has been a successful policy instrument to promote improvement in the quality and safety of ED services provided across NSW public hospitals. The materials developed by the ECI have been credible to ED staff and offered a practical method of managing ongoing continuous quality improvement in the ED. The additional funding provided by NSW to employ local QSOs has been well received. QSOs have been able to support the development of appropriate infrastructure to identify priority activities within the ED, promote staff engagement and involvement in a range of different activities, assess the impact of these activities, and communicate findings to ED team members. This has strengthened the quality culture in hospitals who participated in the Project.

Significant improvements in self-assessed compliance with the ED Quality Standards have occurred. In addition, major drivers of these improvements have also been identified to include (a) the period of employment of a part-time QSO in the ED, and (b) the number of quality and safety activities undertaken within an individual ED. Based upon these findings, levels of future improvement in quality and safety can be estimated and used to support any ongoing business case for Project implementation.

## Appendix 1 Program logic



## Appendix 2 Stakeholder discussion guide

### Evaluation of ED Quality Framework

#### Discussion Guide for Stakeholder Consultations

#### **Purpose and context**

This discussion guide is designed to canvass feedback about the implementation of the **ED Quality Framework Project** at your hospital. The ED Quality Framework was developed by the NSW Emergency Care Institute and built upon the Australasian College for Emergency Medicine's *Policy on a quality framework for emergency departments*. Quality Support Officer Roles were funded by NSW Health in 23 EDs throughout NSW to support the implementation of the ED Quality Framework.

#### **The appropriateness of the Quality Framework**

1. Why was the ED Quality Framework required?
2. Why did your site choose to submit an application to be part of the project?
3. How acceptable is the ED Quality Framework to government, service providers and consumers of health services?

#### **The efficiency of Project implementation**

4. What processes were involved in establishing, operating and maintaining the Framework within each ED?
  - a. Local project governance arrangements?
  - b. Project management arrangements?
  - c. IT systems and communication strategies?
  - d. Education and training?
  - e. Self-assessment?
  - f. Quality Improvement Plan?
  - g. Ongoing quality assurance arrangements?
5. What resources were required to support local implementation of the ED Quality Framework Project?
6. What factors have supported or inhibited the implementation of the ED Quality Framework Project?
7. What opportunities were identified to simplify or improve Framework implementation?

### **The effectiveness of the ED Quality Framework Project**

8. How effectively were local staff engaged to participate in Framework implementation?
9. How effective were the supports provided by the ECI in implementing the framework?
10. What were the major findings from self-assessment?
11. What range of activities were employed to address gaps in quality service delivery?
12. How successful were these activities in addressing major findings from self-assessment?
13. What was the impact of these activities upon workforce within the ED?
14. What were the impacts of these activities upon work practices within the ED?
15. What was the impact of any activities upon staff satisfaction with delivery of ED services?
16. What were the impacts of any changes upon patient flow, patient outcomes, and patient satisfaction with service delivery?
17. Has the project implementation resulted in an increased focus upon quality systems and processes for ED staff?
18. Has the project enabled your ED to more effectively link in with the hospital's quality processes and systems?
19. Has the implementation of the ED Quality Framework Project led to Mortality and Morbidity reviews being undertaken on a more regular basis?
20. How effective has the Sensible Test Order Project been? Has this led to more appropriate ordering of medical imaging and pathology tests?
21. How consistent is the Framework with other quality systems and processes operating within the local hospital?
22. Has the role of Quality Support Officer enhanced staff interest and preparedness to work together to improve their services?
23. Has the Quality Support Officer role enabled the ED to document and monitor its own quality activities?
24. To what extent do you think the Framework's implementation is reliant upon the role of the Quality Support Officer?
25. Has the ED Quality Framework Project led to savings in resources?
26. Can the position of Quality Support Officer pay for itself due to improvements in efficiency?
27. Is the continued implementation of the ED Quality Framework clinically and financially sustainable into the future?

## Appendix 3 Online survey for ED staff

This survey is for ED staff at the 23 implementation sites. The following questions have been designed to gather your feedback about the implementation of the **ED Quality Framework Project** at your hospital. The ED Quality framework was developed by the NSW Emergency Care Institute and built upon the Australasian College for Emergency Medicine's *Policy on a quality framework for emergency departments*. Quality Support Officer roles were funded by NSW Health in 23 EDs throughout the state to support the implementation of the ED Quality Framework and coordinate the prioritised quality improvement activities.

**The survey will take about 5 to 10 minutes of your time to complete.**

The survey is intended for all medical, nursing, allied health and administrative/clerical staff working in the ED.

**Any feedback you provide will be treated confidentially.**

If you require any additional information about this survey, or assistance to complete it, please contact Aspex Consulting on 1800 300 802 (free call) or send an email to [survey@aspexconsulting.com.au](mailto:survey@aspexconsulting.com.au).

If you have any concerns or complaints about this survey, you may address them to a nominated representative at the Agency for Clinical Innovation on 02 9464 4675.

Thank you for taking a few minutes to provide your feedback about the ED Quality Framework Project.

### To be administered to all survey participants

**\* 1. What is the name of your health service?**

Scroll through all options in the drop-down menu below to choose

Select your health service

### **Note that SKIP LOGIC will apply to the following group of questions**

**2. What is your professional occupation (tick one box only)?**

- Medical
- Nursing
- Allied Health
- Administrative or Clerical
- Other (please specify)

**3. How many years have you been working in the ED (tick one box only)?**

- Less than 1 year  
 Between 1 and 3 years  
 Between 3 and 5 years  
 Between 5 and 10 years  
 More than 10 years

**4. Were you a member of the Quality Team established in your ED as part of this project? (tick one box only)**

- Yes  
 No  
 Unsure

**5. For the next questions, please answer "Yes", "No" or "Unsure".**

	Yes	No	Unsure
I am aware of the implementation of the ED Quality Framework Project at our ED	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have received sufficient information about the purpose and context of the ED Quality Framework Project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am aware of the Quality Improvement Priorities that were agreed for our ED	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am aware that a Quality Team has been established to support the implementation of the ED Quality Framework	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am aware of the Quality Standards that underpin the ED Quality Framework	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am now able to contribute regularly to my ED's quality activities as a result of the ED Quality Framework Project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**6. The implementation of the ED Quality Framework is likely to ...**

	Strongly Agree	Agree	Neutral or Unsure	Disagree	Strongly Disagree
Protect the public from harm	<input type="radio"/>				
Improve the quality of ED service provision	<input type="radio"/>				
Drive continuous improvement	<input type="radio"/>				
Increase the consistency of ED services across NSW	<input type="radio"/>				
Improve linkages between ED and hospital quality systems and processes	<input type="radio"/>				

**7. Since the implementation of the ED Quality Framework, our ED undertakes...**

	Strongly Agree	Agree	Neutral or Unsure	Disagree	Strongly Disagree
More frequent clinical audits	<input type="radio"/>				
More frequent incident reviews	<input type="radio"/>				
More frequent quality improvement projects	<input type="radio"/>				
More regular Mortality and Morbidity reviews	<input type="radio"/>				
More appropriate ordering of medical imaging	<input type="radio"/>				
More appropriate ordering of pathology tests	<input type="radio"/>				

**8. The appointment of a Quality Support Officer in our ED ...**

	Strongly Agree	Agree	Neutral or Unsure	Disagree	Strongly Disagree
Has made a positive difference to quality improvement activities at our ED	<input type="radio"/>				
Has enabled the ED to document and monitor its own quality activities	<input type="radio"/>				
Has enhanced staff preparedness to work together to improve services	<input type="radio"/>				
Has provided more opportunities to focus upon quality improvement activities	<input type="radio"/>				
Has been a good use of ED resources	<input type="radio"/>				
Would be worthwhile continuing in the future	<input type="radio"/>				

**9. What Quality Improvement projects have been implemented at your ED following the implementation of the Quality Framework? (please limit to 100 words or less)**

**10. What differences have you observed as a result of the implementation of the Quality Framework at your ED? (please limit to 100 words or less)**

**11. How could the Quality Support Officer's role been made more effective? (please limit to 100 words or less)**

## Appendix 4 ED Quality Standards

CONTEXT	STANDARDS DETAIL	SUGGESTED EVIDENCE
<b>CLINICAL PROFILE</b>		
	Participation in the clinical indicator collection	<ul style="list-style-type: none"> <li>• ACHS Clinical Indicator submission documentation</li> </ul>
	Regular clinical audits including*: <ul style="list-style-type: none"> <li>• Hand hygiene</li> <li>• Antibiotic stewardship</li> <li>• Blood and blood product usage</li> <li>• Pressure injury assessment</li> <li>• Preventing falls</li> <li>• Recognition of deteriorating patient</li> </ul>	<ul style="list-style-type: none"> <li>• Documentation of the audit(s) undertaken</li> <li>• Registry of audits and reviews undertaken within a department</li> <li>• Action Plans resulting from the audit(s)</li> <li>• Active participation in whole of organisation improvement activities</li> <li>• Development/revision of policy, protocols and tools</li> <li>• Improvement data</li> </ul>
	Audit of procedural complications: <ul style="list-style-type: none"> <li>• high volume or high risk clinical conditions</li> <li>• documentation standards</li> <li>• clinical guideline compliance/variance</li> <li>• consultant sign-off for high risk patients</li> <li>• time to critical interventions</li> <li>• time to analgesia</li> <li>• written discharge instructions</li> <li>• unplanned returns to emergency department</li> <li>• patient identification and procedure checking*</li> </ul>	<ul style="list-style-type: none"> <li>• Documentation of the audit(s) undertaken</li> <li>• Registry of audits and reviews undertaken within a department</li> <li>• Action Plans resulting from the audit(s)</li> <li>• Improvement data</li> </ul>
	Audit of medical imaging <ul style="list-style-type: none"> <li>• appropriateness</li> <li>• turnaround time</li> <li>• results checking</li> </ul>	<ul style="list-style-type: none"> <li>• Documentation of the audit(s) undertaken</li> <li>• Registry of audits and reviews undertaken within a department</li> <li>• Action Plans resulting from the audit(s)</li> <li>• Improvement data</li> </ul>

CONTEXT	STANDARDS DETAIL	SUGGESTED EVIDENCE
	<ul style="list-style-type: none"> <li>patient identification and procedure checking*</li> </ul>	
	Audit of pathology <ul style="list-style-type: none"> <li>appropriateness</li> <li>turnaround time</li> <li>results checking</li> </ul>	<ul style="list-style-type: none"> <li>Documentation of the audit(s) undertaken</li> <li>Registry of audits and reviews undertaken within a department</li> <li>Action Plans resulting from the audit(s)</li> <li>Improvement data</li> </ul>
	Audit of medication errors*	<ul style="list-style-type: none"> <li>Documentation of the audit(s) undertaken</li> <li>Registry of audits and reviews undertaken within a department</li> <li>Action Plans resulting from the audit(s)</li> </ul>
	Regular mortality and morbidity meetings	<ul style="list-style-type: none"> <li>Minutes of the M&amp;M meetings</li> <li>TOR of the M&amp;M meetings</li> <li>Documentation relating to actions, audits and improvements made from M&amp;M meetings</li> </ul>
	Guidelines for orientation to the emergency department	<ul style="list-style-type: none"> <li>Orientation booklet</li> <li>Orientation DVD</li> <li>Department records detailing individual participation in orientation</li> <li>Participant satisfaction</li> </ul>
	Participation in national registries submission of data to jurisdictional / national registries relevant to hospital profile	<ul style="list-style-type: none"> <li>Data submissions</li> <li>Reports relating to the submission of data</li> </ul>
<b>EDUCATION &amp; TRAINING PROFILE</b>		
	Departmental educational program including regular meetings: <ul style="list-style-type: none"> <li>guaranteed staff access to program (protected teaching time)</li> <li>a record of attendance</li> <li>evidence of periodic evaluation of education program</li> </ul>	<ul style="list-style-type: none"> <li>Staff timetables</li> <li>Rosters</li> <li>Attendance registers</li> <li>Evaluations of educational programs</li> <li>Agenda relating to meetings</li> <li>Minutes of meetings</li> </ul>
	Presence of Director of Emergency Medicine Training (DEMT): <ul style="list-style-type: none"> <li>Primary/Fellowship Exam Program</li> </ul>	<ul style="list-style-type: none"> <li>Job description</li> </ul>

CONTEXT	STANDARDS DETAIL	SUGGESTED EVIDENCE
	<ul style="list-style-type: none"> <li>satisfactory registrar feedback</li> </ul>	
	Instructors for accredited training courses <ul style="list-style-type: none"> <li>Advanced Paediatric Life Support (APLS)</li> <li>Advanced Trauma Life Support (ATLS)</li> <li>Advanced Complex Medical Emergencies (ACME)</li> <li>Emergency Life Support (ELS)</li> </ul>	<ul style="list-style-type: none"> <li>Job description</li> <li>Training course programs detailing instructors providing sessions cross referenced with ED departmental staff list</li> </ul>
	Staff who have completed accredited training courses <ul style="list-style-type: none"> <li>Advanced Paediatric Life Support (APLS)</li> <li>Advanced Trauma Life Support (ATLS)</li> <li>Advanced Complex Medical Emergencies (ACME)</li> <li>Emergency Life Support (ELS)</li> <li>Advanced Life Support (ARC)</li> <li>Front desk staff training courses</li> </ul>	<ul style="list-style-type: none"> <li>Attendance registers cross referenced with ED departmental staff list</li> </ul>
	Departmental educational roles: <ul style="list-style-type: none"> <li>DEMT/medical educator</li> <li>nursing educator</li> <li>administration staff educator</li> </ul>	<ul style="list-style-type: none"> <li>Job description</li> <li>Educational program calendar</li> <li>Program outlines</li> <li>Evaluations</li> </ul>
	Academic emergency appointments <ul style="list-style-type: none"> <li>professor of emergency medicine /nursing</li> <li>lecturer in emergency medicine /nursing</li> <li>research Fellow</li> <li>postgraduate students</li> </ul>	<ul style="list-style-type: none"> <li>Job descriptions</li> <li>Departmental staff list</li> </ul>
	Student teaching and training in multiple disciplines	<ul style="list-style-type: none"> <li>Timetables</li> <li>Agendas</li> <li>Attendance list</li> <li>Evaluations</li> </ul>
	Participation by staff in scientific and professional association meetings including hosting, attendance	<ul style="list-style-type: none"> <li>Abstracts</li> <li>Programs</li> </ul>
	Collaboration with educational institutions across multiple disciplines:	<ul style="list-style-type: none"> <li>Evidence of joint programs</li> </ul>

CONTEXT	STANDARDS DETAIL	SUGGESTED EVIDENCE
	<ul style="list-style-type: none"> <li>universities</li> <li>learned colleges</li> </ul>	
	Participation by staff in continued professional development (CPD) including in clinical governance and quality improvement training*.	<ul style="list-style-type: none"> <li>Training register</li> <li>Annual list of training and courses provided and participated in by ED staff</li> <li>Annual registration audits</li> </ul>
	Credentialing of staff: <ul style="list-style-type: none"> <li>ultrasound</li> <li>procedural sedation</li> <li>other</li> </ul>	<ul style="list-style-type: none"> <li>Certificates</li> <li>Programs</li> <li>Attendance lists</li> </ul>
	Staff competencies: <ul style="list-style-type: none"> <li>Basic Life Support (BLS)</li> <li>Advanced Life Support (ALS)</li> <li>Other</li> </ul>	<ul style="list-style-type: none"> <li>Job description</li> <li>Appraisals</li> <li>Certificates</li> <li>Programs</li> <li>Attendance lists</li> </ul>
	Participation in multidisciplinary, interdepartmental, and pre-hospital & retrieval education	<ul style="list-style-type: none"> <li>Certificates</li> <li>Programs</li> <li>Attendance lists</li> </ul>
<b>RESEARCH PROFILE</b>		
	Academic emergency appointments <ul style="list-style-type: none"> <li>professor of emergency medicine /nursing</li> <li>lecturer in emergency medicine /nursing</li> <li>research fellow</li> <li>postgraduate students</li> </ul>	<ul style="list-style-type: none"> <li>Job descriptions</li> <li>Departmental staff list</li> </ul>
	Research grants: <ul style="list-style-type: none"> <li>number of grants</li> <li>type of grants</li> <li>funding received</li> </ul>	<ul style="list-style-type: none"> <li>Documentation of grant information</li> <li>Annual reports</li> <li>Departments reports</li> </ul>

CONTEXT	STANDARDS DETAIL	SUGGESTED EVIDENCE
	Research awards	<ul style="list-style-type: none"> <li>• Media articles</li> <li>• Documentation of award</li> </ul>
	Research projects (internal and external to the department)	<ul style="list-style-type: none"> <li>• Project report</li> <li>• Project synopsis</li> </ul>
	Research presentations at scientific meetings (including 4.10 poster, and oral presentations)	<ul style="list-style-type: none"> <li>• Actual presentations</li> <li>• Program of scientific meeting</li> </ul>
	Publications by emergency department staff <ul style="list-style-type: none"> <li>• book chapters</li> <li>• refereed journal articles</li> </ul>	<ul style="list-style-type: none"> <li>• Copies of relevant publications</li> <li>• Bibliography of all publications for staff in ED</li> </ul>
	Uptake of research outcomes <ul style="list-style-type: none"> <li>• Process for review of evidence and incorporation into practice</li> <li>• Policies, guidelines etc referenced to relevant, credible sources</li> </ul>	<ul style="list-style-type: none"> <li>• Process and evidence of uptake</li> <li>• Referenced reviewed documents</li> </ul>
<b>ADMINISTRATION PROFILE</b>		
	A designated Quality Team (including medical and nursing staff, may include clerical and allied health professionals)*	<ul style="list-style-type: none"> <li>• Job descriptions</li> <li>• Roles and responsibilities</li> <li>• Meeting minutes</li> <li>• Meeting TOR</li> </ul>
	Regular audits <ul style="list-style-type: none"> <li>• waiting times</li> <li>• death audit</li> <li>• trauma audit</li> <li>• complaints/patient satisfaction</li> <li>• clinical practice guideline and protocol compliance /variance</li> </ul>	<ul style="list-style-type: none"> <li>• Documentation of the audit(s) undertaken</li> <li>• Registry of audits and reviews undertaken within a department</li> <li>• Action Plans resulting from the audit(s)</li> <li>• Improvement data</li> </ul>
	Risk management: <ul style="list-style-type: none"> <li>• formal pathology and radiology results checking process</li> <li>• incident monitoring with feedback to clinicians</li> </ul>	<ul style="list-style-type: none"> <li>• Documentation of the audit(s) undertaken</li> <li>• Action Plans resulting from the audit(s)</li> <li>• IMS feedback</li> <li>• Improvement data</li> </ul>

CONTEXT	STANDARDS DETAIL	SUGGESTED EVIDENCE
	Financial considerations: <ul style="list-style-type: none"> <li>• departmental budget</li> <li>• business plan</li> </ul> Equipment considerations: <ul style="list-style-type: none"> <li>• Maintenance and replacement as per G15</li> <li>• Access to bedside ultrasound</li> </ul> Workforce considerations as per G23: <ul style="list-style-type: none"> <li>• Number of filled full time equivalence (FTE) / Total FTE – for FACEMs, Trainees, nurses, and clerical</li> <li>• sick leave rates</li> <li>• turnover rates at each level and for each discipline</li> <li>• vacant positions and time to recruit</li> <li>• completion rates of contracts</li> <li>• staff satisfaction</li> <li>• staff complaint resolution</li> <li>• clinical support time</li> <li>• accumulation of professional development leave</li> <li>• occupational safety including nosocomial infections, and violent incidents</li> <li>• performance appraisal</li> <li>• staff meetings to ensure continuity of communication</li> <li>• structured administration:</li> </ul>	<ul style="list-style-type: none"> <li>• Business plan</li> <li>• Department budget</li> <li>• Variance reports</li> <li>• Stocktake and gap analysis of equipment in ED Assessment against recommended equipment</li> <li>• Equipment requests</li> <li>• Complaint reports</li> <li>• Staff satisfaction survey</li> <li>• Patient satisfaction survey</li> <li>• Workforce gap analysis</li> <li>• Rosters</li> <li>• Timetables</li> <li>• Staff meeting minutes and agendas</li> <li>• Departmental organisational chart</li> <li>• Data reports:               <ul style="list-style-type: none"> <li>○ HR reports</li> <li>○ sickness</li> <li>○ retention rates</li> <li>○ vacancy</li> <li>○ Violence and aggression statistics</li> <li>○ OH report</li> </ul> </li> </ul>
	Partnering with consumers*: <ul style="list-style-type: none"> <li>• Involvement with consumers in planning, evaluation and improvement activities</li> <li>• Active approach to person centred care</li> </ul>	<ul style="list-style-type: none"> <li>• Committee TOR</li> <li>• Attendance rates</li> <li>• Consumer feedback</li> </ul>
<b>PROFESSIONAL PROFILE</b>		
	Participation of staff in the work of some or all of the following through committee membership, workshops, provision of feedback and / or	<ul style="list-style-type: none"> <li>• Committee membership registry / TOR</li> <li>• Registry of attendance</li> </ul>

CONTEXT	STANDARDS DETAIL	SUGGESTED EVIDENCE
	submission for e.g.: <ul style="list-style-type: none"> <li>• Local / regional committees bodies representing emergency medicine</li> <li>• ACEM and other relevant professional Colleges, Health Departments and relevant bodies (International, Australasian, Commonwealth, State/Territory) e.g. ECI, ACI, HETI, NSW Health</li> <li>• Australian Council on Healthcare Standards (ACHS)</li> <li>• Australian Commission on Safety and Quality in Healthcare (ACSQHC)</li> <li>• Australian Institute of Health and Welfare (AIHW).</li> </ul>	<ul style="list-style-type: none"> <li>• Registry of submissions</li> </ul>
	Other	

NOTE: \* indicates a direct link to the NSQHS

Source: ED quality standards developed by the ECI ([http://www.ecinsw.com.au/ED\\_QF\\_Project](http://www.ecinsw.com.au/ED_QF_Project))