

RECOGNISING AND RESPONDING TO CLINICAL DETERIORATION

SURVEY OF RECOGNITION AND RESPONSE SYSTEMS IN AUSTRALIA

SUMMARY OF FINDINGS

SEPTEMBER 2011

INTRODUCTION

The Australian Commission on Safety and Quality in Health Care (the Commission) commenced its Recognising and Responding to Clinical Deterioration program in 2009. The overall goal of this program is to save lives and reduce harm by improving recognition and response systems.

Recognition and response systems are formal systems to support staff to promptly, accurately and reliably recognise patients whose condition is deteriorating clinically and to respond appropriately to stabilise the patient. They include policies and protocols covering issues such as measurement and documentation of observations and escalation of care, use of formal handover protocols, mechanisms for providing a rapid response when clinical deterioration occurs, governance frameworks, and processes for providing education and evaluating performance.

One of the key ways for the Commission to achieve the goal of this program is by providing resources, information and tools to support jurisdictions, health services and public and private hospitals to optimise their recognition and response systems. To be able to do this effectively, the Commission needs to know about what systems are in place, what gaps exist, and what the needs of hospitals are. One of the key outputs from the Commission is the National Consensus Statement: Essential Elements for Recognising and Responding to Clinical Deterioration. To date the Commission's work in supporting use of the Consensus Statement has been mainly focused on improving observation charts. The Commission is now looking at what other tools and resources may be needed by hospitals to implement the Consensus Statement.

We have some information about the recognition and response systems that hospitals have in place, particularly regarding the response to clinical deterioration. In 2005 approximately 60% of hospitals in Australia and New Zealand with an intensive care unit had a medical emergency team (MET).¹ Some Australian hospitals have published details of their MET services,²⁻⁴ and information about systems to support early recognition of deterioration is now beginning to be published.⁵ However overall there is very limited information available about the recognition and response systems and practices in place more broadly, particularly outside the large public hospitals that have published on this subject.

To address this issue, and to inform its own planning, the Commission has conducted a national survey of recognition and response systems in Australian hospitals. This report provides a summary of the results of this survey and discussion of implications for the work of the Commission.

METHODS

A survey was developed to collect information about the systems and practices hospitals have in place to recognise and respond to clinical deterioration. This information was collected through a web-based survey of public and private hospitals in Australia.

A survey was developed that asked questions about:

- systems for recognising deterioration such as the existence of policies about taking observations or the use of track and trigger systems

- systems for responding to deterioration, such as the use of intensive care liaison nurses or medical emergency teams to provide emergency assistance
- organisational systems to support the recognition of and response to deterioration, including provision of education and audit processes.

This survey was piloted in a paper form in 14 hospitals prior to being finalised. The final survey is attached.

A letter signed by the Chief Executive of the Commission invited participation in the survey. Distribution of these invitations to individual hospitals was coordinated through the Commission's Inter Jurisdictional and Private Hospital Sector Committees. Each hospital was asked for a nominee who was involved with implementation of recognition and response systems in their facility to complete the survey.

Seven Australian jurisdictions chose to participate in the survey. Members of the Commission's Inter Jurisdictional Committee were asked to distribute the invitation from the Commission to hospitals or, where appropriate, regional general managers or executives to identify nominees to complete the survey. The methods of distribution varied across the jurisdictions. Because this distribution happened at the jurisdictional level, the Commission does not have the details of the number of hospitals or regional areas that were invited to participate in the survey.

New South Wales did not participate in the survey because of the state-wide implementation and parallel evaluation processes being undertaken as part of the Between the Flags Program. Between the Flags is a state-wide program that provides a safety net in all NSW public hospitals for recognising and responding to clinical deterioration. A summary of the elements of Between the Flags and implementation of these in NSW public hospitals is provided later in this report.

For the private sector, the invitation to participate in the survey was distributed directly to the chief executive or equivalent in hospitals that were members of the Australian Private Hospitals Association (APHA). Catholic Health Australia distributed the invitation to its member hospitals.

The Commission followed up with each participating jurisdiction regarding distribution of the survey to hospitals. Follow up was also made with Catholic Health Australia and APHA members about the identification of a nominee to complete the survey.

Once the contact details of the nominee to complete the survey were provided to the Commission, the Commission contacted the nominee directly to provide information about how to access the web-based survey. Where nominees were identified and the survey not completed, emails and telephone calls were repeatedly made within the three month survey period.

The survey was conducted using a web-based platform designed by PUBLICeye, the company contracted by the Australian Commission on Safety and Quality in Health Care to create the survey. The survey was conducted between September and December 2010.

The following section provides a summary of the results of the survey. Where relevant, comparisons are made between hospitals of different size and different location. These comparisons have not been the subject of significance testing. Hospitals were asked to provide the average number of available for their hospitals. This information was used to classify the size of the hospital according to the categories used by the Australian Institute of Health and Welfare.⁶ Based on the postcode of each hospital, the location was categorised

according to the Australian Standard Geographical Classification.⁷ Because of the small number of hospitals located in very remote locations, the hospitals in remote and very remote locations were combined for these comparisons.

FINDINGS

The details of 227 nominees were provided to the Commission, and 182 of these (80%) completed the survey. The range of positions of individuals nominated to complete the survey varied considerably, including safety and quality professionals, clinical managers, clinical educators, medical and nursing professionals and executives. In some cases one nominee completed the survey for more than hospital, and in total information was collected about 220 Australian hospitals. The demographic details of these hospitals are provided in the Table 1.

Table 1: Demographic characteristics of participating hospitals

Hospital characteristic	Number of hospital sites; N = 220 n (%)
Type of hospital	
Public	143 (65%)
Private	77 (35%)
Number of beds	
10 or fewer beds	21 (9.5%)
10 to 50 beds	60 (27.3%)
50 to 100 beds	54 (24.5%)
100 to 200 beds	32 (14.5%)
200 to 500 beds	39 (17.7%)
More than 500 beds	14 (6.4%)
Location of hospital	
Major cities	106 (48.2%)
Inner regional	63 (28.6%)
Outer regional	22 (10.0%)
Remote	21 (9.5%)
Very Remote	8 (3.6%)
Hospital ICU	
ICU	79 (35.9%)
HDU	39 (17.7%)
No ICU/HDU	102 (46.4%)
On-site medical coverage 24/7	
Yes	111 (50.5%)
No	109 (49.5%)

Systems for recognising clinical deterioration

Written policies

Over three quarters (77%) of respondents reported that they had written policies, protocol or guidelines in place regarding the measurement of physiological observations such as temperature, respiratory rate and blood pressure. Of these policies, almost all applied to patients in general ward areas (93%) and specified that observations should be taken on all patients (82%). Two thirds of the policies (63%) specified the minimum frequency and type of observations required. There was little variability among hospitals of different sizes and locations regarding the presence of written observation policies.

Escalation protocol

Over three quarters (77%) of respondents reported that they had formal escalation protocols in place that described the actions that should be taken when abnormal observations or other clinical deterioration are observed. Of these escalation protocols, just under half (45%) included graded responses where different actions are required for different levels or length of observed deterioration.

Hospitals in remote areas tended to be less likely to have formal escalation protocols in place. Where these protocols did exist, they were less likely to include a graded response for hospitals in remote areas (Figure 1).

Track and trigger system

“Early warning” or “track and trigger” systems are formal systems that rely on routine periodic measurement of observations (tracking), with a predetermined action (trigger) when a certain threshold is reached. These systems can be built into observation charts.

Only one third (35%) of respondents reported their hospital reported that they used formal early warning or track and trigger system. Of the 77 hospitals that reported that they had these systems, over half (58%) were single or multiple parameter systems where a call for emergency assistance is made if one or more specific criteria are met (such as the medical emergency team calling criteria). Ten percent of these hospitals reported that they used a track and trigger system that required calculation of a score (such as the Modified Early Warning Score or MEWS) and 26% used a combined system (such as both MET and MEWS).

Where hospitals had a track and trigger systems in place, a quarter (27%) had triggers built into the observation chart to indicate abnormality, 5% had actions to respond to abnormality on chart, 39% had both triggers and actions built into the observation chart and 29% had neither the triggers or actions built into the chart.

There was also some variability regarding the use of track and trigger systems according to the size and location of the hospital. Although the trend was not consistent, larger hospitals, and those in metropolitan areas tended to be more likely to use these tools (Figures 1 and 2).

Figure 1: Presence of recognition systems by hospital location

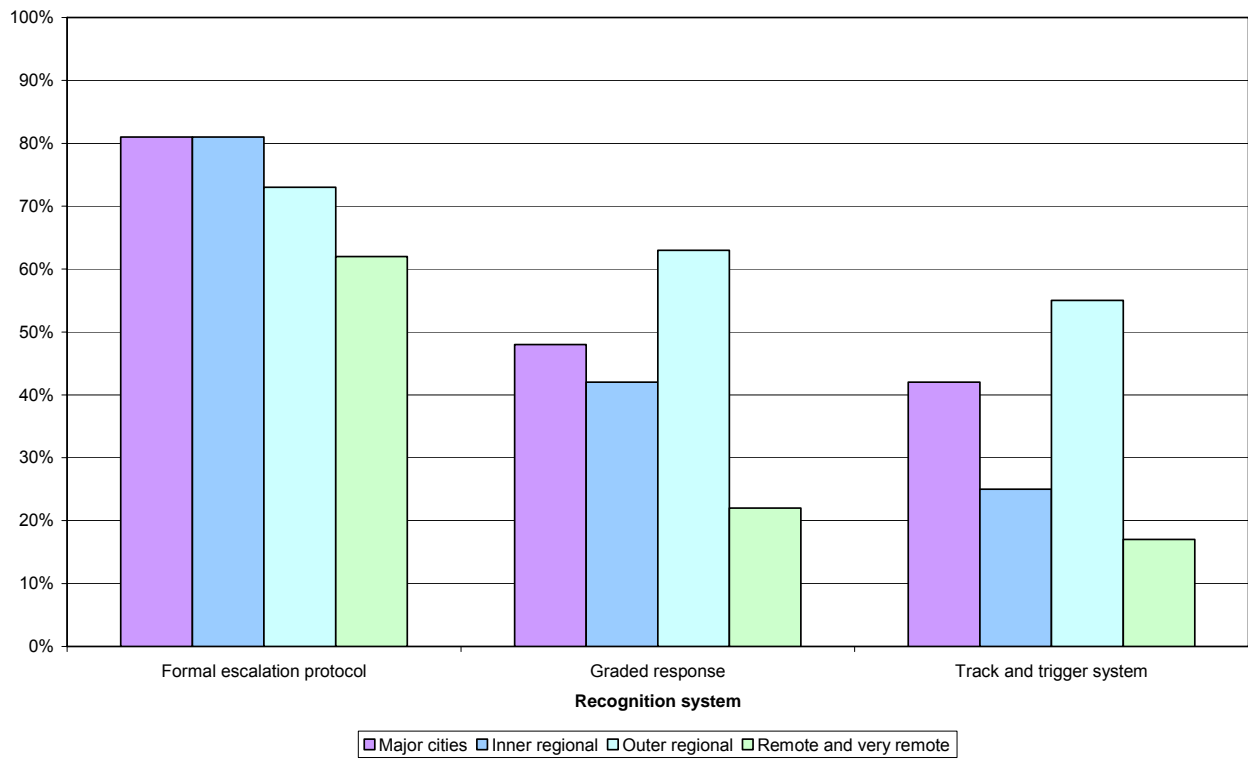
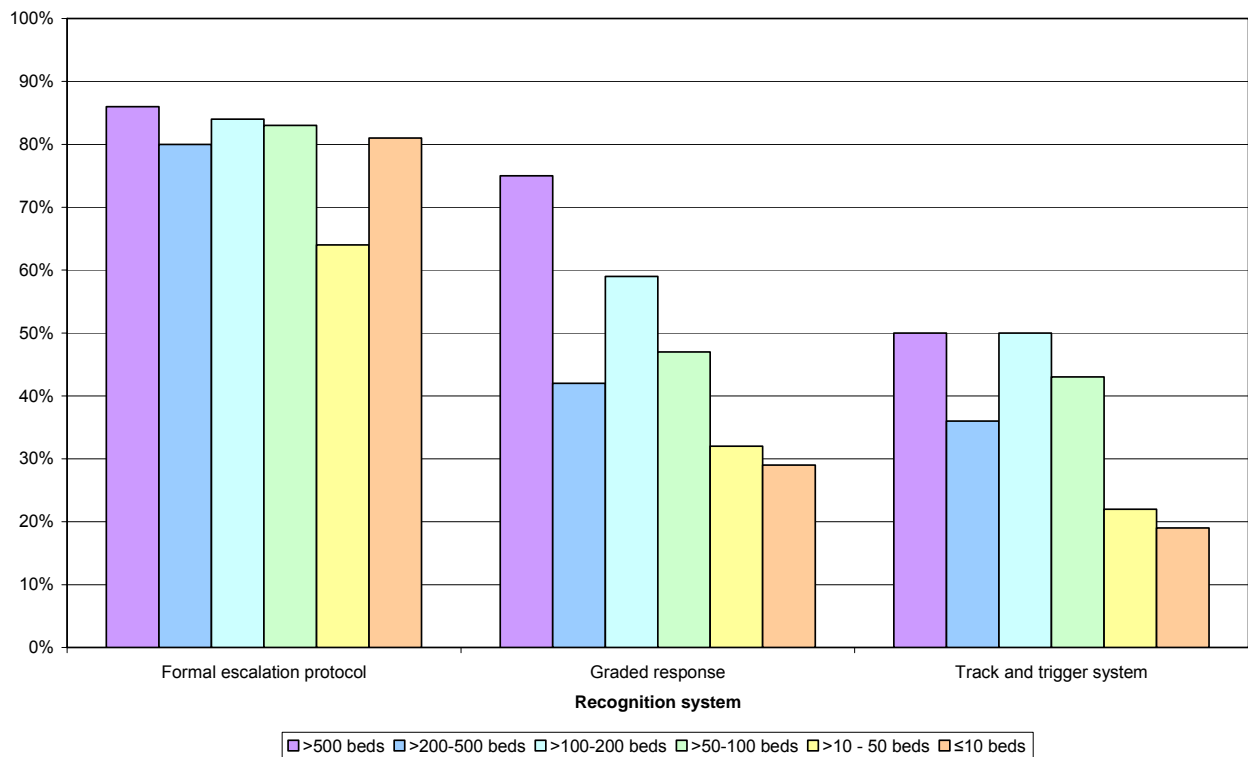


Figure 2: Presence of recognition systems by hospital bed size



Handover communication

Half of the respondents reported that their hospital had used a structured protocol or tool for handover communications. The most common tools were SBAR (34%) and ISOBAR (33%), followed by ISBAR (21%) (respondents were able to identify more than one tool for each hospital).

While there was limited variability in the use of handover protocols according to the size of the hospital, the use of these protocols tended to be more likely in remote locations. Three quarters (76%) of hospitals in remote and very remote locations reported use of a structured handover protocol, compared to a range of 43% to 51% for hospitals in other categories. It is likely that this result is due to the good take up of this survey in one jurisdiction where a project has been implemented introducing a specific handover protocol into rural hospitals.⁸

Systems for responding to clinical deterioration

Rapid response systems are systems for providing emergency assistance to patients whose condition is deteriorating. The system includes the clinical team or individual providing the emergency assistance, and may include on-site and off-site personnel.

Formal rapid response systems

Sixty six percent of all respondents had some form of formal rapid response system in place for providing emergency assistance to patients whose condition is deteriorating. In hours, 33% of these systems were based in intensive care, 56% were based outside of intensive care, and 25% used a system that was external to the hospital. Some hospitals had more than one type of system in place and respondents were able to choose more than one response.

Doctors were primarily responsible for leading the rapid response systems based in intensive care (68%) and outside of intensive care (61%). Nurses were more likely to be the leader when the rapid response system was based outside ICU (28%) than when it was based inside (13%).

There was considerable variability regarding presence of a rapid response system according to hospital size and location, with larger hospitals and those in metropolitan areas being more likely to have these systems in place (Table 2).

Table 2: Proportion of hospitals with a rapid response system in place by size and location

Hospital characteristic	Number of hospitals with a rapid response system in place; N =220 n (%)
Size	
>500 beds	13 (92.9%)
>200-500 beds	32 (82.1%)
>100-200 beds	27 (84.4%)
>50-100 beds	36 (66.7%)
>10 - 50 beds	30 (50.0%)
≤10 beds	7 (33.3%)
Location	
Major cities	81 (76.4%)
Inner regional	44 (69.8%)
Outer regional	13 (59.1%)
Remote and very remote	7 (24.1%)

Systems based outside intensive care

Of the 82 hospitals that reported that they had rapid response systems based outside intensive care, 24% of these systems were located in emergency departments and 23% were located in acute medical units or general medical wards. A large proportion of respondents indicated that their rapid response system was based in another location (53%). These included high dependency and coronary care units, surgery and anaesthetics. In some cases, the rapid response system was a hospital-wide response. Examples of the some of the types of systems described by respondents are as follows:

- *Senior registered nurses from two surgical wards and an ALS accredited registered nurse from peri operative services.*
- *Obstetric registrar, obstetric anaesthetist and emergency department midwife.*
- *Hospital based response, ICU registrar, medical registrar, anaesthetic registrar, senior registered nurse, medical intern and orderly.*
- *Senior clinical staff and ED staff have pagers that alert them when assistance is required on the ward area, we only have 1 ward and a small ED department.*
- *Our team consists of ALS trained staff, resident doctor and theatre recovery staff during operational hours as we do not have an emergency or ICU department.*
- *Secondary hospital. No ED. Team consists of any doctors in the building and a senior nurse and the staff at the site of emergency.*
- *Hospital wide service lead by the Medical Registrar.*
- *General Medicine and ALS nurse.*
- *MET team made up from Emergency & Anaesthetic staff.*
- *RRT not “owned” by a particular unit. ICU, CCU and Medicine contribute to team makeup.*

External to the hospital

Thirty seven hospitals reported that they had an external rapid response system. These responses were provided by local GPs (32%) ambulance (24%) and visiting medical officers

(11%), or a combination of these responses. Other arrangements that were identified included retrieval to a city hospital, transfer to a co-located public hospital and use of staff from a co-located public emergency department.

Rapid response systems out of hours

The survey asked about rapid response systems both in and out of hours. The proportion of hospitals that reported the presence of different types of rapid response systems was very similar in and out of hours, with 33% reporting use of a rapid response system based in ICU out of hours (34% in hours), 53% reporting a system based outside ICU (56% in hours) and 28% reporting a system that is external to the hospital (25% in hours). Of the 145 hospitals that had a formal rapid response system, only two hospitals reported that they had no formal system in place after hours (1%).

Who can call for assistance

When a patient's condition is deteriorating, all respondents reported that nurses on the ward could call the rapid response system. Doctors on the ward could call in 89% of hospitals and other hospital staff (such as allied health professionals, ancillary staff) could call in 69% of hospitals. Eighteen percent of respondents reported that families, patients and carers could call the rapid response system.

Organisational systems to support the recognition of and response to deterioration

Dedicated responsibility for recognition and response systems

Almost 70% of respondents reported that there were identified staff in their hospitals with primary responsibility for developing, implementing, sustaining and monitoring recognition and response systems. In the majority of cases (67%) less than 0.5 full-time equivalent (FTE) had been allocated to this role. Only 12% of hospitals had allocated more than one FTE to this role. Smaller hospitals and those in remote areas tended to be less likely to allocate staff to these roles (Figures 3 and 4).

Funding for the rapid response system

Only a small proportion of respondents (6%) reported that specific funding had been allocated to the operation of their rapid response system. For most hospitals, emergency assistance was provided as part of existing services.

Governance of recognition and response systems

Of the 181 hospitals that reported that they had recognition and response systems in place, 72% reported that there was a committee that oversaw the operation of these systems. Sixty five percent of these hospitals also reported that their executive received regular reports on the operation and outcomes of their recognition and response systems. Governance systems such as committees and the provision of performance data to executives were tended to be less common in smaller hospitals and those in remote areas (Figures 3 and 4).

Figure 3: Presence of organisational systems by hospital location

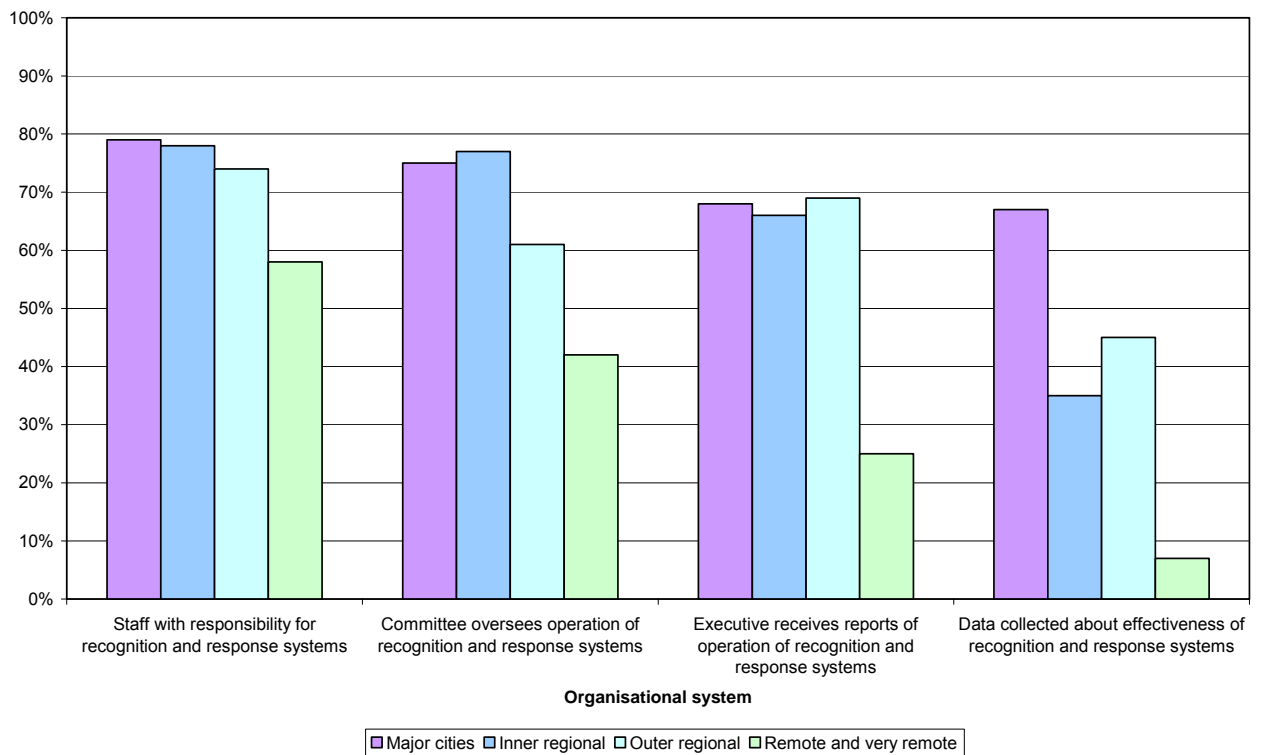
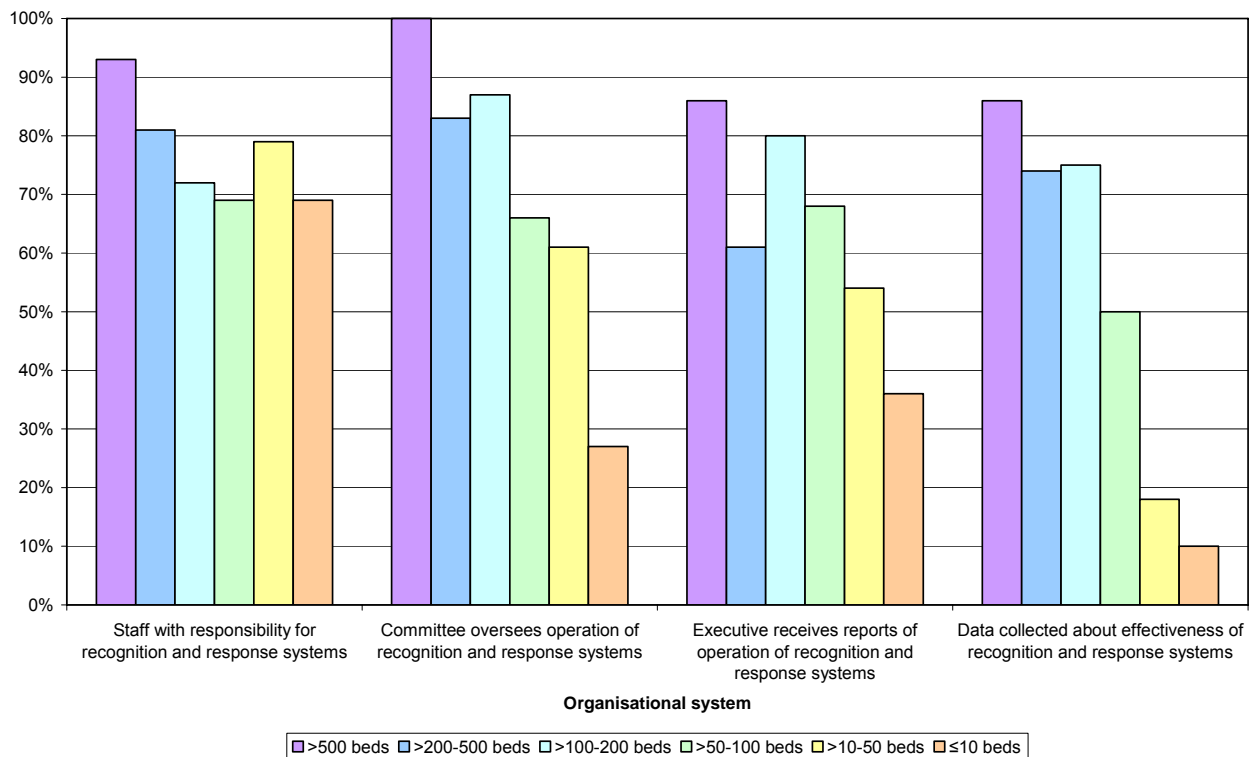


Figure 4: Presence of organisational systems by hospital size



Training and education

Over two-thirds (69%) of the respondents reported that their hospital had provided regular training and education to support staff in the recognition of and response to clinical deterioration (Table 3). It tended to be less likely that training on this topic was provided by smaller hospitals and those in remote areas.

Table 3: Type of education and training provided

Number of hospitals which provided training N = 220 n (%)	Training for doctors n (% of hospitals providing this type of training)	Training for nurses n (% of hospitals providing this type of training)	Training for other hospital staff n (% of hospitals providing this type of training)
138 (63%) provided orientation training about existence of rapid response system and how to call	91 (65.9%)	138 (100%)	71 (51.8%)
152 (69%) provided training in basic life support	75 (49.3%)	148 (97.4%)	103 (67.8%)
136 (62%) provided training in advanced life support	80 (58.8%)	133 (97.8%)	2 (1.5%)
117 (53%) provided training in measurement and interpretation of observations	21 (17.9%)	117 (100%)	7 (6.0%)
128 (58%) provided training in management of deteriorating patients	49 (38.3%)	128 (100%)	10 (7.8%)
125 (57%) provided training in communication skills	43 (34.4%)	123 (98.4%)	59 (47.2%)
112 (51%) provided training in team work	46 (41.1%)	112 (100%)	59 (53.2%)

Data collection

Almost half of the respondents (48%) reported that their hospital collected specific data about the effectiveness of their recognition and response systems. This tended to be more likely to occur in larger hospitals and those in metropolitan areas (Figures 3 and 4). Respondents were asked which measures they systematically documented. Of the 105 hospitals that collected data systematically:

- 90% collected the number of cardiac arrests
- 86% collected the number of calls for emergency assistance to the medical emergency team or other rapid response system
- 78% collected the number of deceased patients
- 65% collected the number of unplanned admissions to intensive care
- 45% collected the number of deceased patients without a not for resuscitation or similar order.

A number of other measures were also identified that were collected systematically. These included patient transfers, readmissions to intensive care, admissions to ICU within 24 hours of admission to the ward, patient outcomes following a MET call, details of patients with multiple calls, antecedents to MET calls, and failure to activate the rapid response system when triggers existed.

Information collected from these measures was used to:

- identify where improvements could be made to services (84%)
- report to the executive and oversight committees about key performance indicators (77%)
- track changes over time (76%)
- feed back to local ward teams (67%)
- feed back to teams providing emergency assistance (65%)
- integrate into other patient review processes, such as death reviews, morbidity and mortality meetings and peer review processes (61%).

Other purposes for data identified by respondents included self-assessment as part of accreditation processes, entering into risk management or incident management reporting systems, and incorporation into education and training.

BETWEEN THE FLAGS

Between the Flags is the state-wide program in NSW that aims to improve the recognition and response to patients whose condition is deterioration. The roll-out of the program began in January 2010, with elements being implemented progressively across the state. The five key elements to the Between the Flags Program are as follows:⁹

1. a governance structure in each Local Health Network and hospital in NSW to oversee the implementation and sustainability
2. a track and trigger system with a graded response built in to the standard observation charts (the Standard Adult General Observation or SAGO chart)
3. standards for a process for escalating concerns and providing a rapid response to patients whose condition is deteriorating (Clinical Emergency Response System)
4. education packages for all staff to give them the knowledge and skills to confidently recognise and manage clinical deterioration
5. key performance indicators to be collected, collated and used to improve recognition and response systems.

Based on the work that has been done to implement Between the Flags it is possible to identify the recognition and response systems that are in place in NSW public hospitals (Table 4). One of the key implementation drivers for Between the Flags in NSW was a mandatory state-wide policy directive issued in May 2010.¹⁰⁻¹¹

Table 4: Implementation of recognition and response systems in NSW public hospitals as part of Between the Flags

Recognition and response systems	Details of implementation in NSW public hospitals
Recognition systems	
Written policies for observations	Policy specifies type and frequency of observations and when observations should be taken
Escalation protocol	Graded two-tier escalation protocol applies in all hospitals
Track and trigger system	Track and trigger system built into observation chart for all hospitals
Handover communication	A structured communication tool must be used when escalating care ISBAR is taught as part of the mandatory DETECT education program
Response systems	
Formal rapid response system	Formal protocol for a rapid response system required in all hospitals in response to early (yellow zone) and late (red zone) signs of deterioration
Type of rapid response system	All hospitals must have formalised systems for response to early signs by the home team (clinical review) and to late signs by a team with advance life support skills (rapid response)
Rapid response system after hours	Rapid response system needs to be in place 24 hours a day
Who can call for assistance	All staff can call for assistance
Organisational systems	
Dedicated responsibility for recognition and response systems	All health services have a dedicated executive sponsor and clinical lead as well as a program manager for Between the Flags
Funding for the rapid response system	Funding for Between the Flags and rapid response systems is by local health districts
Governance of recognition and response systems	Identified governance structures required for all hospitals that specify executive sponsor, clinical champion and oversight committees
Training and education	Awareness training about recognition and response systems for all staff DETECT education for all clinicians that focuses on caring for patients whose condition is deteriorating Advanced clinical and resuscitation training for members of rapid response teams
Data collection	All hospitals are collecting information about the rate of rapid response calls and the rate of cardiac arrests

DISCUSSION

This survey found generally positive results regarding the presence of basic recognition and response systems in Australian hospitals. The majority of hospitals that responded to this survey have policies for the measurement and documentation observations, protocols to escalate care when a patient's condition deteriorates and systems to provide a rapid response to manage this deterioration.

The results were less positive regarding the presence of more sophisticated recognition and response systems. For example, where escalation protocols were in place, less than half included a graded response where different actions are required for different levels of deterioration, and only one third of hospitals were using track and trigger systems to support early identification of deterioration. These results suggest that more information is needed about how systems such as these can improve the recognition of and response to clinical deterioration, including tools that can be taken and adapted for individual facilities.

This survey revealed that hospitals are using a wide variety of different types of rapid response systems for providing emergency assistance to patients whose condition is deteriorating. Most of the reports that have been published about rapid response systems are from large tertiary hospitals with an intensive care unit, and the systems that they are reporting are generally based in intensive care.^{2,12-14} In contrast, almost half of the hospitals responding to this survey did not have an intensive care or a high dependency unit. Over half of the rapid response systems were not based in ICU, with an additional 25% external to the hospital. Systems based in the emergency department, medical and surgical wards and anaesthetics were mentioned. A number of systems drew on staff from across the entire hospital. Externally, responses were provided by local GPs, ambulance, visiting medical officers, retrieval services and co-located public hospitals.

Generally the organisational systems to support the recognition of and response to clinical deterioration were reported to be in place. These systems included allocation of staff with responsibility for recognition and response systems, committees to oversee the operation of these systems, processes for reporting on performance to executives and the provision of relevant training to staff. However it should be noted that less than half of the responding hospitals reported that they collected data about the effectiveness of their recognition and response systems. More work is needed to reinforce the importance of data collection as part of organisational quality improvement systems, and more information is needed about what data to collect about recognition and response systems, and how this should be done.

Public hospitals in NSW were not included in the survey. However the work that has been done as part of the Between the Flags Program means that public hospitals in that state should have in place the key recognition and response systems that were examined in this survey. There are 203 public hospitals and acute care facilities in NSW – information about the systems being implemented as part of Between the Flags adds significantly to the information collected as part of this survey.

Although no significance testing was done as part of this initial analysis, it is clear that the results of this survey varied among hospitals of different size and location. It should be noted that there is some confounding between these two factors, with many of the smaller hospitals in Australia located in rural and remote areas. Overall, smaller hospitals, and those in remote areas, tended to be less likely to have formal recognition and response systems in place. This trend was found across most of the different types of systems included in this survey, but was particularly noticeable regarding the existence of rapid response systems and organisational systems to support the governance of processes to recognise and respond to

clinical deterioration. Smaller and more remote hospitals have less staff compared to large metropolitan hospitals, and may have less capacity to put in place these types of systems. In some cases the need for governance systems such as formal committees may be reduced in these circumstances. However irrespective of the size or location of the hospital, the presence of a rapid response system, and the existence of processes such as collecting and reporting on performance of rapid response systems would be part of best practice. These findings reinforce the need for more specific information about recognition and response systems tailored for specific settings.

The methodology used in this survey means that generalising the results to make statements about the presence of recognition and response systems in hospitals across Australia is problematic. Different methods to disseminate the invitation to participate in the survey were used among the participating jurisdictions and the private hospital sector. Information is not available about the number of hospitals that were invited to participate in the survey, meaning that it is not possible to determine the response rate for the survey.

Despite these limitations, this survey has provided useful, new, information. Thirty five percent of responses were from private hospitals, 60% from hospitals with 100 beds or fewer, and 51% from hospitals in outer regional, remote and very remote areas. This is the first time that such detailed information about the recognition and response systems in these types of hospitals has been collected.

The survey has also met the needs of the Commission in terms of providing information to help inform its planning processes, and to determine where resources should be allocated to support implementation of the elements in the Consensus Statement. Information will be provided in the forthcoming implementation guide to the Consensus Statement that will address some of the gaps identified in this survey, such as how to develop an escalation protocol with a graded response and resources about track and trigger systems. The Commission's work on observation charts will also support the use of more effective systems for recognising clinical deterioration. Given that the survey identified that hospitals are at varying stages of progress with their recognition and response systems, an ongoing strategy to promote the Consensus Statement and use of the implementation guide will be needed as systems are developed and embedded.

In terms of new actions that could be undertaken by the Commission to improve recognition and response systems in Australian hospitals, it is clear that more tailored support is needed for small hospitals and hospitals in rural areas. One way of initiating this work could be to follow up with hospitals with these characteristics that reported that they had comprehensive recognition and response systems in place. This would provide more detail about the types of systems that are used, how they have been developed and how they are operating. This information could provide models and resources for other small and remote hospitals to improve their systems.

Similarly, the Commission could follow up with hospitals that use different types of rapid response systems, particularly those based outside ICU and external to the hospital. This would provide more information about how these systems worked, and also provide models for hospitals wanting to introduce or review their rapid response systems.

Collection of information about the performance of recognition and response systems is an important part of quality improvement processes. Less than half of hospitals responding to this survey collected data about the performance of their systems. One of the Commission's core functions concerns safety and quality measurement and data, and this result suggests that it would be useful to provide more guidance about what data should be collected about

the performance of recognition and response systems, how the information should be collected and how it could be used.

Australia led the way internationally with the development of solutions to respond to the problem of clinical deterioration in hospitals.⁴ This survey indicates that in the past 20 years the concepts of recognising and responding to clinical deterioration have spread widely, and systems to support these processes are in place in hospitals across Australia. There are now opportunities to build on this and further improve and optimise these systems; the results of this survey provide useful directions about how this could occur.

ACKNOWLEDGEMENTS

The Commission would like to thank the hospitals that participated in this survey, and those that completed the survey as part of the pilot process. The Commission would also like to thank the NSW Clinical Excellence Commission for providing information about the implementation of the Between the Flags program.

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Recognising and Responding to Clinical Deterioration

Survey of Recognition and Response Systems

Introduction

Early recognition of clinical deterioration, followed by prompt and effective action, can minimise the occurrence of adverse events such as cardiac arrests, and may mean that a lower level of intervention is required to stabilise a patient. Recognition and response systems are systems put in place to support staff to promptly and reliably recognise patients who are clinically deteriorating, and to respond appropriately to stabilise the patient.

We have little information about the recognition and response systems that hospitals have in place. We do know that over half of Australian hospitals with an intensive care unit have a medical emergency team or rapid response team. However we do not know what systems are being used to help staff recognise deterioration, nor do we know what type of response systems are being used in hospitals without an intensive care unit.

Purpose of the survey

This survey is being conducted by the Australian Commission on Safety and Quality in Health Care as part of its national Recognising and Responding to Clinical Deterioration Program. The purpose of the survey is to obtain information about the recognition and response systems in place in Australian public and private hospitals. The survey collects information about:

- systems for recognising deterioration such as the existence of policies about taking observations or the use of early warning scoring systems
- systems for responding to deterioration, such as the use of intensive care liaison nurses or medical emergency teams to provide emergency assistance
- organisational systems to support the recognition of and response to deterioration, including provision of education and audit processes.

This information will help the Commission target its work to provide resources that are matched to the systems, processes and needs of hospitals.

Use of data collected in the survey

Data collected as part of this survey will be held by the Commission. Survey data from public hospitals will be provided to the health department in the relevant state or territory to support local jurisdictional programs to improve the recognition of and response to clinical deterioration. Survey data from private hospitals within a particular ownership group will be provided to that group. No other organisation will receive data from the survey. No information will be published about individual hospitals. All information that is published will be for groups of hospitals and no hospitals will be identified.

How to fill in this survey

One survey should be completed for each hospital. This may include one physical site, or a multi-campus hospital where the systems are the same across campuses. Where recognition and response systems are different across campuses, separate surveys should be completed for each campus.

This survey should be completed by a person or team of people who are familiar with the recognition and response systems in place within the hospital. People who may need to be involved in this process could include hospital managers, directors of clinical governance, directors of nursing, directors of medical services, directors of intensive care and CPR committee members.

The survey can be commenced and saved, before being completed at a later date.

The final date by which the survey should be completed and submitted is **Friday 29 October 2010**.

Hospital name:

Where relevant, specify the hospital site that survey is for:

Name and contact details for primary contact regarding completion of the survey:

Name:

Position:

Telephone number:

Email address:

Systems for recognising clinical deterioration

1. Does your hospital have written policies, protocols or guidelines regarding the measurement of physiological observations such as temperature, respiratory rate and blood pressure?
 - No (Go to Q3)
 - Don't know (Go to Q3)
 - Yes (Go to Q2, then Q3)

2. If yes, please complete the following questions regarding the scope and requirements of these policies, protocols or guidelines:
 - a. Does the policy, protocol or guideline apply to patients in general ward areas?
 - Yes
 - No

 - b. Does the policy, protocol or guideline specify that observations should be taken on all patients?
 - Yes
 - No

 - c. Does the policy, protocol or guideline specify the minimum frequency and type of observations required for patients?
 - Yes
 - No

3. Does your hospital have a formal, written policy or protocol that describes actions that should be taken when abnormal observations or other clinical deterioration is observed?
 - No (Go to Q5)
 - Don't know (Go to Q5)
 - Yes (Go to Q4, then Q5)

4. If yes, does this protocol include a graded response linked to the level of identified deterioration or length of time of deterioration?
 - Yes, different actions are required for different levels or length of observed deterioration
 - No, there is only one response for all instances of observed deterioration

5. "Early warning" or "track and trigger" systems are formal systems that rely on routine periodic measurement of observations (tracking), with a predetermined action (trigger) when a certain threshold is reached. These systems can be built into observation charts. Does your hospital use a formal, documented early warning or track and trigger system?
 - No (Go to Q8)
 - Don't know (Go to Q8)
 - Yes (Go to Qs 6 & 7, then Q8)

6. If yes, which of the following best describes it (tick one):
 - If one or more of a number of specific criteria are met, a call for emergency assistance is made (such as the MET criteria)
 - A score needs to be calculated from a number of specific criteria to determine whether emergency assistance is called (such as MEWS)
 - A combined system (such as both MET and MEWS)
 - Other type of system (please describe):

7. Are the triggers for abnormal observations and the response required built into the design of your general observation chart?
 - Triggers or cut off scores to indicate abnormality are included on the observation chart
 - Actions required in response to abnormality are included on the observation chart
 - Both triggers and actions are included on observation chart
 - Neither triggers nor actions are included on observation chart

8. Does your hospital use a structured protocol or tool for handover communication? (such as SBAR)
- No (Go to Q10)
 - Don't know (Go to Q10)
 - Yes (Go to Q9, then Q10)
9. If yes, what is the name of this protocol? (tick as many as needed)
- SBAR
 - ISOBAR
 - ISBAR
 - SHARED
 - Other (please describe)
10. Are there any comments that you wish to make about the systems you have in place for recognising clinical deterioration? (open response)

Systems for responding to clinical deterioration

Rapid response systems are systems for providing emergency assistance to patients whose condition is deteriorating. The system will include the clinical team or individual providing the emergency assistance, and may include on-site and off-site personnel.

11. Apart from a cardiac arrest team, does your hospital have a **formal** rapid response system in place for providing emergency assistance to patients whose condition is deteriorating?
- No (Go to Q22)
 - Don't know (Go to Q22)
 - Yes (this includes hospitals where the cardiac arrest team also provides care to patients who are deteriorating but have not had a cardiac arrest) (Go to Q12-21, then Q22)
12. **In hours**, what type of system in place? (can tick more than one)
- Rapid response system based in intensive care (Go to Q13)
 - Rapid response system based outside of intensive care (such as emergency department or acute medical unit) (Go to Q14)
 - Rapid response system that is external to the hospital (Go to Q15)
 - Other (please describe):
13. For rapid response systems based in intensive care:
- This service is led by doctors
 - This service is led by nurses
 - Other arrangements (please describe):
14. For rapid response systems based outside intensive care, please complete the following questions regarding the location and leadership of this service:
- a. Location of service (tick one)
- This service is based in the emergency department
 - This service is based in the acute medical unit or general medical ward
 - Other location (please describe):
- b. Who leads the service (tick one)
- This service is led by doctors
 - This service is led by nurses
 - Other arrangements (please describe):

15. For rapid response systems that are external to the hospital, who provides this service?
- Visiting medical officer
 - Local general practitioner
 - Local ambulance
 - Other (please describe):
16. **After hours**, what type of system in place? (can tick more than one)
- Rapid response system based in intensive care (Go to Q17)
 - Rapid response system based outside of intensive care (such as emergency department or acute medical unit) (Go to Q18)
 - Rapid response system that is external to the hospital (Go to Q19)
 - No formal system in place (Go to Q20)
 - Other (please describe):
17. For rapid response systems based in intensive care:
- This service is led by doctors
 - This service is led by nurses
 - Other arrangements (please describe):
18. For rapid response systems based outside intensive care please complete the following questions regarding the location and leadership of this service:
- a. Location of service (tick one):
- This service is based in the emergency department
 - This service is based in the acute medical unit or general medical ward
 - Other location (please describe):
- b. Who leads the service (tick one)
- This service is led by doctors
 - This service is led by nurses
 - Other arrangements (please describe):
19. For rapid response systems that are external to the hospital, who provides this service?
- Visiting medical officer
 - Local general practitioner
 - Local ambulance
 - Other (please describe):
20. Who can call your rapid response system for assistance for patients whose condition is deteriorating? (can tick more than one)
- Nurses on the ward
 - Doctors on the ward
 - Other hospital staff (such as allied health professionals, ancillary staff)
 - The patient, the patient's family or carer
 - Other (please describe):
21. Are there any comments you would like to make about the systems your hospital has in place to respond to patients whose condition is deteriorating? (open response)

Organisational systems to support the recognition of and response to deterioration

22. Within your hospital, are there any staff who have primary responsibility for developing, implementing, sustaining and monitoring your recognition and response systems? (These staff may also have other responsibilities.)
- No (Go to Q24)
 - Don't know (Go to Q24)

- Not applicable – do not have recognition and response systems in place (Go to Q24)
- Yes (Go to Q23, then Q24)

23. If yes, how many full-time equivalents (FTE) are allocated to this role?
- Less than 0.5 FTE
 - 0.5 FTE
 - 0.6 – 1 FTE
 - More than 1 FTE

24. Within your hospital, is there specific funding allocated to the operation of your rapid response system?
- No, emergency assistance provided by the rapid response system is delivered as part of existing services (Go to Q26)
 - Don't know (Go to Q26)
 - Not applicable – do not have recognition and response systems in place (Go to Q26)
 - Yes (Go to Q25, then Q26)

25. If yes, how many full-time equivalents (FTE) are allocated to this role?
- Less than 0.5 FTE
 - 0.5 FTE
 - 0.6 – 1 FTE
 - More than 1 FTE

26. Is there a committee that oversees the operation of your recognition and response systems? (This committee may also have other responsibilities, or may be separate from existing committees such as cardiac arrest or resuscitation committees.)
- Yes
 - No
 - Don't know
 - Not applicable – do not have recognition and response systems in place

27. Does your executive receive regular reports on the operation and outcomes of your recognition and response systems?
- Yes
 - No
 - Don't know
 - Not applicable – do not have recognition and response systems in place

28. Does your hospital provide regular training and education to support staff in the recognition of and response to clinical deterioration?
- No (Go to Q30)
 - Don't know (Go to Q30)
 - Yes (Go to Q29, then Q30)

29. If yes, what type of education and training is provided?

	Doctors	Nurses	Other hospital staff
Orientation training about existence of rapid response system and how to call	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>Who else receives this training:</i>
Basic life support	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>Who else receives this training:</i>
Advanced life support	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	N/A
Measurement and interpretation of observations	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>Who else receives this training:</i>
Management of deteriorating patients	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>Who else receives this training:</i>
Communication skills	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No

			<i>Who else receives this training:</i>
<i>Team work</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <i>Who else receives this training:</i>

30. Does your facility collect specific data regarding the effectiveness of your recognition and response systems?

- No (Go to Q33)
- Don't know (Go to Q33)
- Yes (Go to Qs 31 & 32, then Q33)

31. If yes, which measures do you systematically document? (can tick more than one)

- Number of calls for emergency assistance to MET or other rapid response system
- Number of cardiac arrests
- Number of unplanned admissions to intensive care
- Number of deceased patients
- Number of deceased patients without a not for resuscitation or similar order
- Other: [open response]

32. What do you do with these data? (can tick more than one)

- Report to the executive about key performance indicators
- Feed back to local ward teams
- Feed back to teams providing emergency assistance
- Review to identify possible improvements in services
- Review to track changes over time
- Integrate into other patient review processes, such as death reviews
- Other: [open response]

33. Are there any comments you would like to make about the organisational systems your hospital has in place to support the recognition of and response to patients whose condition is deteriorating? [open response]

Demographic information

34. What is your type of hospital?

- Public
- Private
- Public hospital under private management contract

35. What is the average number of available beds?

36. What is the postcode for your hospital?

37. Do you consider Saturdays, Sundays and public holidays as out of hours?

- Yes
- No
- Don't know

38. Does your hospital have: (tick as many as applicable)

- A general intensive care unit (integrated medical/surgical including ICU managed high dependency unit)
- Integrated intensive care / coronary care / high dependency unit
- Paediatric ICU
- Other ICU (specify type):
- High dependency / step down / special care unit

No intensive care or high dependency units

39. If intensive care unit, what is the functional ICU level: (reference to guidelines)

- Level 3
- Level 2
- Level 1 (short term ventilation only)

40. What is the average number of available beds?

General ICU:
Other ICU:
HDU managed by ICU:
Coronary care managed by ICU:

41. Does your hospital have on-site medical coverage 24/7?

- Yes
- No

42. If no, please describe the internal and external arrangements in place for providing care to your patients: (tick as many as applicable)

- On call visiting medical officers
- On call junior medical officers
- On call general practitioners
- Local ambulance service
- Royal Flying Doctor Service
- Telephone or other tele-health service to regional or other facility providing higher level of care
- Telephone or other tele-health service to other support service or network
- Other: [open response]

Glossary

Abnormal observations: Physiological measurements that deviate unacceptably from normal values.

Average number of available beds: Number of beds immediately available for use by an admitted patient. As the number of beds may vary, the average number of available beds can be averaged for the last financial year.

Cardiac arrest team: Team that responds to a patient when they have had a cardiac or respiratory arrest.

Early warning system: formal system for periodic measurement of observations associated with a threshold for action when a certain level of abnormality is observed. An early warning system can include a weighted scoring system where physiological parameters are weighted and summed, providing an overall score for the patient at one period of time (such as MEWS).

Emergency assistance: Clinical advice or assistance provided when a patient's condition has deteriorated severely. This assistance is provided as part of the rapid response system, and is additional to the care provided by the attending medical officer or team.

Escalation protocol: The protocol that sets out the organisational response required for different levels of abnormal physiological measurements or other observed deterioration.

Functional ICU level: ICU level according to minimum standards from the College of Intensive Care Medicine (<http://www.bonntech.com.au/testing/cicm/cmsfiles/IC-1%20Minimum%20Standards%20for%20Intensive%20Care%20Units.pdf>)

Graded response: An organisational response to deterioration that varies according to the severity of the abnormality or deterioration. Options may include increasing frequency of observations, nursing interventions, review the attending medical officer or team, obtaining emergency assistance.

Handover protocol: Formal structured protocol used to communicate information about patients during handover and in other situations. The protocol specifies the type of information to be provided at handover. One example is ISOBAR: Identification of the patient, Situation and status, Observations, Background and history, Assessment and actions, Responsibility and risk management.

High dependency unit: A discrete unit within a hospital able to supply critical care expertise at less intensive resource levels, providing a level of care that falls between the general ward and the intensive care unit.

In hours: Hours in which the hospital is operating with its full clinical and non-clinical staffing capacity.

Medical emergency team (MET): One way of providing emergency assistance as part of a rapid response system. Usually consists of a team led by a doctor and based in intensive care.

Modified Early Warning Score (MEWS): One type of early warning system based on a weighted score.

Observations: Measurements of physiological functioning. Usually includes as a minimum respiratory rate, oxygen saturation, blood pressure, heart rate, temperature and level of consciousness.

Other clinical deterioration: Other changes to the patient's condition that may indicate clinical deterioration. Examples include airway threat, seizure, sudden fall in level of consciousness or new pain.

Out of hours: Hours in which the hospital is operating with reduced clinical and non-clinical staffing levels.

Rapid response systems: Systems for providing emergency assistance to patients whose condition is deteriorating. The system will include the clinical team or individual providing emergency assistance, and may include on-site and off-site personnel.

Recognition and response systems: Formal systems to support staff to promptly and reliably recognise patients who are clinically deteriorating, and to respond appropriately to stabilise the patient.

Track and trigger system: a formal system that relies on routine periodic measurement of observations (tracking), with a predetermined action (trigger) when a certain threshold is reached.