Between the Flags Project

The Way Forward

October 2008

Introduction

When a swimmer goes to the beach in the Australian summer there are clear symbols of safety – the highly visible red and yellow flags – which not only denote where it is safe to swim but also indicate that there is a team on duty to safeguard their well being. There has not been a drowning death between the flags on an Australian beach with lifesavers on duty since Surf Lifesaving Australia began their regular patrols in 1935 – a truly enviable record. Of those drowning deaths that have occurred on Australian beaches almost all have occurred on average 1-5km away from patrolled beaches. This symbolism resonated well with clinicians concerned with the recognition and management of the deteriorating patient and the system-wide issues that this subject highlights. In the hospital setting, the flags are often not clearly visible and the team and rescue mechanisms not clearly defined and patients can die very close to the help they need. We know if a patient is in a "safe zone" when we measure their vital signs. The indicators of safety or danger for patients – flags - are the observation of their vital signs and clinical condition. In NSW hospitals the clinical and ancillary staff on the wards are the team on duty to ensure the well being of patients - they are our lifeguards.

Health care needs to have in place a system where they can ensure people in difficulty can be appropriately managed and cared for. The lifesaving analogy is an enviable model to emulate.

The lack of recognition and appropriate management of inpatients, whose condition is deteriorating, has been identified as a contributing factor for many adverse events worldwide. Review of information gathered through analysis of data from the NSW Incident Information Management System (IIMS) and from Root Cause Analyses and from deliberations of the NSW Department of Health Reportable Incident Review Committee confirmed that this is also a significant issue for the NSW Health system. In NSW there is state-wide agreement that this is a high priority for all Area Health Services (AHS).

This document describes the agreed way forward to implement system wide change.

Background

Multiple factors necessitate the need for robust systems around care of the deteriorating patient. The patient population is ageing, patients have more co-morbidities than previously, hospital length of stay is decreasing, and complex surgery is being performed on patients who had previously been considered too high a risk for surgery [1]. As well, the general level of clinical activity is increasing throughout the hospitals. Clinical loads in hospitals are becoming increasingly complex where more patients experience healthcare for shortened periods of time [2]. With the increasing acuity of patients, there are greater risks associated with after-hours care, particularly on night-shifts that need to be addressed [3-5].

In 2005 clinicians from the Greater Metropolitan Clinical Taskforce (GMCT) produced a framework document entitled Summary of GMCT guidelines for in-hospital clinical emergency response systems for medical emergencies [6] to guide prevention of clinical crises by early recognition and management of patients with acute conditions and provision of models for timely intervention for patients in the general ward. This document identified the need for an approach that requires flexibility, broad applicability and hospital-wide "buy in". The document has been distributed widely for comment and advocated the implementation of 12 key recommendations.

The Clinical Excellence Commission (CEC) coordinated the NSW participation in the national Safer Systems Saving Lives (SSSL) project in 2006 which was based on the USA Institute for Healthcare Improvement (IHI) 100K lives project. The project involved the implementation of six evidence based interventions utilising a "bundle" of care components. One of the six interventions was the implementation of Rapid Response Systems (RRS). This intervention was not comprehensively addressed by all ten pilot teams in NSW: it was seen to be too challenging within the context of SSSL. Teams cited a lack of organisational support and the resources to drive it!

Collaborative work on the recognition and management of the deteriorating patient has been undertaken by the CEC, the NSW Department of Health (DoH), and the GMCT. This project entitled 'Between the Flags' was conducted between November 2007 and July 2008. Project activities included a review of the literature, consultation with industry experts, exploration and examination of current local issues associated with recognition and management of the deteriorating patient and a trial of some solutions for implementation in five health facilities representing tertiary, metropolitan, rural base and rural hospitals.

The Problem

The Medical Emergency Team, an Australian initiative, was developed to provide a rapid response to deranged vital signs recognised as precursors to cardiac arrest in an effort to provide timely intervention to patients at risk [7]. Clinical staff working with MET systems were trained to recognise specific abnormal vital signs and use a predefined communication process to summon a team of expert clinicians to attend the patient [7, 8]. The MET system has been a precursor to multiple models of Clinical Emergency Response Systems used in Australia and overseas that use vital signs and other physiological indicators as triggers for clinical escalation [9]. Underscoring these systems is an assumption that the timeliness of recognition of the deteriorating patient increases the opportunity to provide timely interventions that result in improved outcomes in potential survivors' [1, 10, 11].

Identifying the Deteriorating Patient

Although it is known that changes in vital signs provide crucial evidence of patient deterioration, there is still poor recognition by clinical staff as to what and why vital signs are recorded [12] and how frequently vital signs should be taken [13]. There is poor compliance in completion of vital sign reviews, particularly in the recording of respiratory rate. This was evident in the "reliability audits" undertaken as part of the Between the Flags project whereby the "reliability" of the observation chart in recording vital signs was measured. In particular the measurement of respiratory rate was consistently poorly recorded. Respiratory rate is consistently identified as a significant early indicator of deterioration [14, 15]. In addition, clinician response to abnormal vital signs findings have been reported as variable [16]. Each of these correctible factors increases the risks to patients. While heart rate, blood pressure and respiratory rate are widely recognised as vital signs within medical and surgical patient groups, other patient groups recognise additional physiological parameters as vital signs. For example, high temperature is viewed with concern in oncology patients and raised diastolic blood pressure has greater significance to those caring for antenatal women.

Observation chart design has been noted to improve compliance with vital sign recording and can help staff identify patient deterioration [14, 17]. At present several different groups have developed charts which are in limited use in some facilities. In order to standardise care and responses any chart in use should conform with the minimum identifiers of a seriously ill, at-risk patient. Over time efforts should be made

to reduce the number of charts in use and in particular move towards a single chart for the state on general care wards.

The opportunity to improve observation recording through refocussing clinical staff on this important facet of patient care is currently part of the Essentials of Care project being undertaken by the Nursing and Midwifery Office (NaMO) of the NSW Department of Health in hospitals across the state.

Responding to the Deteriorating Patient

Once signs of deterioration are identified this should lead to a tiered clinical response depending on patient acuity that can involve different members of the primary team or an emergency response team according to identified clinical need summarised on the specifically designed chart [6].

These tiers include:

Tier 1   All clinical staff with patient care responsibilities who should identify clinical deterioration and activate the response. For education purposes students at undergraduate level should be included with this group.

Tier 2   The primary care or "home" team eg the junior medical staff of the primary team caring for the patient. These are the first line responders who conduct appropriate clinical assessment and early intervention; appropriate communication and escalation of care of the deteriorating patient including clinical handover practices.

Tier 3   Rapid Response System clinicians will have advanced clinical and resuscitation skills. These clinicians provide a timely response when the vital signs/observations as defined on the chart require an escalation response to be initiated. This is to ensure that the skills and knowledge of the response teams matches the clinical needs of the patient.

In order to systematise this process, some facilities have developed escalation protocols to assist their staff. The clarification and refinement of escalation protocols was a part of the Between the Flags project.

The variety and complexity of health care delivery in NSW is reflected in the fact that there are more than 200 hospital facilities ranging from tertiary referral hospitals with several hundred beds and multiple subspecialty services to small multipurpose services in predominantly rural areas. These smaller hospitals have limited role

delineations and require formalised linkages with higher levels of care in other hospitals. In addition there are more than 100,000 people working in the NSW Health system, the majority of them in clinical roles. The work patterns of these clinical roles are changing including doctor's working hours, increasing demand for flexible work practices (such as part time and casual work for both doctors and nurses) and these staff are increasingly mobile across the health system. This then impacts on both the number of staff available and their level of training in the management of clinical deterioration. Regional facilities are noted to have fewer resources to manage emergencies [18] and the need for alternative emergency response models for small or regional facilities should be considered [6].

Effective communication is a critical element in recognition and management of the deteriorating patient through improving the quality of communication between clinicians [19, 20]. Communication occurs at many levels, between individual clinicians attempting to escalate concerns, between team members at the change of shift during 'handover' and, between teams and facilities [21]. There are significant opportunities to improve the quality of communication and patient safety through the use of systems and tools to facilitate structured effective communication [20, 22]. Structured communication methods have been identified as effective means to improve the quality of communication between clinicians There are opportunities to reduce barriers to effective communication that are often found within health facilities [23]. Barriers can be reduced by implementing policy to promote communication and mitigate bullying behaviours [23]. The introduction of technology and communication systems can assist in timely exchange of patient information [5, 19, 24, 25].

Maintaining continuity of care is an important issue in health care. The Between the Flags project identified the transfer of patients from one ward to another, particularly to a lower level of care, such as ED to ward or ICU to ward often occurred when the patient breached MET criteria. The ward staff were then ill equipped to deal with the ensuing deterioration. One mechanism to ensure continuity of care from team to team and from shift to shift is by effective communication and handover of information. The focus groups conducted as part of the Between the Flags project highlighted deficiencies in handover processes for both junior medical staff and nursing staff. It could be said that the current system often has no "memory" as there is strong reliance on verbal communication which is frequently unsupported by documentation in the progress notes. The AMA developed guidelines for safe handover in 2006 [21] however these guidelines have not been widely implemented in NSW. There is a

possibility that electronic handover systems may improve the quality and reliability of handover in the future and some facilities such as Concord, Nepean and St Vincent's hospitals have well developed electronic handover tools.

Clinical incident data indicates that patient care can be compromised if appropriate care is not taken to ensure that adequate skill mix is available throughout the working day and, importantly, after hours. We need to ensure that there are appropriate numbers of appropriately trained and credentialed staff on duty to provide the required level of care and supervision to deal with the management of the deteriorating patient at all times. There is a need to ensure we have in place standards to ensure on call, supervision and clinical handover that will support the process of care for all patients but will also address issues raised around how best to ensure the processes of care for the deteriorating patient can be appropriately met. These guidelines or minimum standards need to be widely available, discussed with all staff on appointment and regularly updated.

The Quality in Australian Healthcare Study [26] found that "cognitive failure" was a factor in 57% of adverse clinical events and this involved a number of features including failure to synthesise and act on clinical information and a lack of simple "rules" (ABCDEFG-oxygen, posture). While the implementation of a Medical Emergency Team (MET) or other forms of Rapid Response System (RRS) decrease the number of cardiac arrests and changes the number of referrals to the ICU how much this is due to education or the actual RRS is yet to be clearly defined. A number of education courses have been developed both within Australia and overseas which emphasises clinicians' perceived need for improvements to education and training that provide doctors and nurses with greater confidence and ability to recognise and manage the deteriorating patient (e.g. ALERT, UK and RAMPAC, Australia). Education of clinical staff must begin at the undergraduate level to promote integrated continuity of care [1], recognition of the deteriorating patient, the use of escalation systems, effective communication and treatment of the deteriorating patient. It is recognised that different levels of training are required for clinicians, depending on their skill levels and the role they play in actioning clinical responses [6].

It is well recognised and accepted that specific and relevant data improves clinical practices, reduces costs and improves patient outcomes [27]. The ability to benchmark performance against peer clinicians or organisations is also known to

drive improvement in practice. Evaluation of all initiatives is necessary to measure the effectiveness of changes in clinical practice and to identify if desired improvements have been delivered [22, 28]. Furthermore some authors identify the need to pre-determine performance measures to confirm the effectiveness of initiatives [22]. One of the key functions of the Clinical Excellence Commission (CEC) was to develop and conduct quality system assessments (QSA) of public health organisations (PHOs) and recommend improvements to the NSW health system. Ongoing measurement and monitoring of project outcomes and reporting at a senior level has been shown to be a significant factor in sustainability of outcomes along with embedding changes in the structure of the organisation such as through policy, procedures, roles and responsibilities (e.g. position descriptions) [29]. The QSA process is one means of measuring and ensuring this is taking place.

Activities undertaken within the Between the Flags project confirmed the hypothesis that recognition and management of the deteriorating patient is a highly complex one that requires a multifaceted approach and a series of solutions. Using a mix of qualitative and quantitative methods the project examined the issues impacting on the recognition and management of the deteriorating patient for clinical staff and trialled a number of solutions to test their effectiveness in a variety of settings. The project confirmed that a key issue in the lack of recognition and management of the deteriorating patient was poor observation recording practices including a lack of measurement of respiratory rate. In some sites escalation protocols were either absent or unclear. Rapid response systems were generally present in the trial sites but often were not used effectively with unclear escalation processes and lack of staff knowledge about how to activate the response (phone numbers). A number of solutions were trialled in the Between the Flags project. Details are to be found in the separate project report document.

Despite strong clinical leadership and recognition from around the world of initiatives undertaken in Australia we have lacked a coordinated response to the issue. Clearly it is a multifaceted issue and requires a multifaceted approach for success. We need to ensure that we have a coordinated response in place for what is accepted as best practice based on the evidence available and what is regarded as best practice by the world community.

It is acknowledged that as a minimum, a statewide response to a deteriorating patient should include the following components.

1. A system for early recognition of at-risk patients

2. A clear process for escalation of clinical concern and an obligatory rapid response to predefined deteriorating patients with appropriately trained staff

3. Appropriate data collection to support practice improvement including feedback to clinicians

4. Supportive education programs to facilitate 1-4 above

5. To achieve the above will require

    o   Definition of minimum standards for every facility in terms of what is appropriate for observation, escalation and response

    o   Significant buy-in from senior management and clinicians in terms of leading, supporting and allocation of resources

    o   Sustainability will require continued executive and clinical leadership and continued resources

6. Evaluation to demonstrate that change is an improvement

Recommendations

The following recommendations are made to address the issues relating to the management and escalation of care for the deteriorating patient:

1. EARLY IDENTIFICATION OF AT-RISK PATIENT

A system must be in place for early identification of an at-risk patient in every hospital in NSW.

To achieve this will require the following:

- Implementation of a specifically designed vital signs/observation chart for general wards in every hospital aimed at recognising and facilitating response to patients at risk of clinical deterioration. All general observation charts used must conform to the predefined minimum standards

- This observation chart will be used as a track and trigger system to support early identification of patients at risk of significant clinical deterioration

- For specialty areas (eg maternity, paediatrics, and oncology) and those with an HDU/ICU component to their work (eg neurosurgery, cardiothoracic surgery) different or additional triggers will need to be identified and incorporated into the observation chart.

2. ESCALATION PROTOCOLS AND RAPID RESPONSE SYSTEMS

Every facility is required to have in place escalation protocols to manage the deteriorating patient which include a rapid response system.

This will require the following:

- Implementation of a Rapid Response System (RRS), including the development and implementation of clear escalation protocols, in every NSW hospital within one year

- Escalation protocols and rapid response systems are to be appropriate for the size and role of the individual facility and resources that are available. However every acute hospital in NSW will have at least one person available 24/7 who can practice advanced resuscitation and maintain life until further assistance arrives.

- The unique needs of rural and remote facilities to support introduction of RRS require a minimum set of call criteria to be developed, formal networking links with higher levels of care established, and involvement of ambulance and paramedic system as well as general practitioners in the response.

- These protocols are to be based on agreed track and trigger systems that provide cover across all shifts on all days and in all wards
- Escalation protocols and response algorithms are to be widely promulgated within each facility, displayed in patient care areas
- Designated senior member of staff will be present on each shift, available to coordinate ward/facility management and care of the deteriorating patient, (dependant on ward/ facility size and patient acuity). This person will be appropriately trained to ensure they have a minimum standard of skills, knowledge and experience. Need to be systems in place to ensure maintenance of this (which will be prescribed within policy and promulgated though incorporation in position description).
- Minimum standards will need to be developed to ensure consistency in application of observations, escalation protocols and rapid response systems

3. EDUCATION AND TRAINING

Detailed education and training programs are required to be developed and implemented aimed at the recognition and management of the deteriorating patient.

This will include:

- Education and training will be targeted at the three identified tiers of responders and with flexible delivery options

- Participation of every NSW health facility employee in a rapid response education/ orientation program including training in local escalation protocols

- Education strategies to be developed that are cognisant of the special requirements of staff working in rural and remote facilities and a flexible approach be taken in partnership with ASNSW and LMOs where appropriate

- This education must be part of a credentialing process for all staff with a clinical role. This approach will increase awareness, increase skills of hospital nurses and doctors and will ensure at least one clinician in each facility across all shifts has advanced resuscitation skills.

- Appropriate certification points (eg CPD/MOPS etc) should be available for clinicians undertaking the various levels of the education program

4. DATA COLLECTION

Ongoing collection and analysis of appropriate data to monitor the implementation and progress of the program is to be undertaken.

This will require:

- Development of an appropriate database, which will be interactive and accessible to clinical staff to derive reports locally
- Identify key performance indicators. The following are considered as minimum indicators;
    - Rate of unexpected deaths (excluding not for CPR) per 1000 admissions
    - Rate of unexpected cardiac arrests (excluding not for CPR) per 1000 admissions
    - Rate of unexpected transfer to higher level of care (includes unplanned admission to ICU per 1000 ICU admissions. These cases may require further audit)
    - Number of RR calls/ 1000 admissions
- Ongoing monitoring of the observation charts through regular audits. This information needs to be available to clinicians and facility managers

5. COMMUNICATION AT CLINICAL HANDOVER

Each hospital should implement a standardised process for the handover of patients which can be utilised on all occasions and can equally be done when all clinicians are not on site together.

This will include:

- Programs such as ISBAR, or I PASS the BATON will be appropriate and should be taught as part of the education package of the program
- Clinical review to ensure a patient is safe for transfer to a lower level of care must occur immediately prior to transfer of care and the current patient status communicated to the accepting clinician or clinical team.

6. EXECUTIVE AND CLINICAL BUY-IN

High level support from both management and clinicians is required for success.

This will require:

- Strong support from the Minister and Director-General
- Action at all levels of the health system - just as there needs to be clinicians leaders identified there will also need to be a strong leader identified from within the management at the NSW Department of Health, AHS and facility level
- Each AHS and individual facility will need to have in place appropriate structures led by lead clinicians and the lead manager to support implementation and maintenance of the system. This group will receive the data on performance on a regular basis and will monitor implementation and progress
- Involvement of experts from within the AHS – if none are available support from experts from outside the AHS should be sought
- Support of specialty clinician networks such as ICCMU and the similar ED network to promote improvement as part of a community of practice

7. EVALUATION

There should be ongoing evaluation of the program

This will require:

- Funding is to be made available for evaluation over each of the first three yrs of the program
- Evaluation needs to be conducted by a group external to those involved in development and implementation of the program
- Evaluation will include measures of structure, process and outcome such as: level of implementation of rapid response systems, review of recordings on observation charts and outcome measures identified as KPIs above
- Provision of a report on an annual basis on progress
- There should also be ongoing assessment of the implementation of the process through the QSA program

Implementation of the core program including resources and timelines

This is a major program for the NSW Department of Health and will require the full support of the Minister and Director-General as well as support from the whole NSW health system. It is addressing one of the major issues facing healthcare in the 21st century and will require considerable focus and ongoing resourcing if it is to be both successful and sustainable. Due to the fact that it is such a major program it will require all clinical staff to have some level of training. It is clearly not a program that can be implemented over a 12 month period.

Whilst many of the significant recommendations can be implemented in the first 12 months of the program, the cultural and education components will require at least three years before they can be fully implemented. The timeframe to ensure sustainability of the program is five years.

To implement the program a lead agency will need to be identified. The role of this agency will be to coordinate statewide implementation of the agreed recommendations including coordination of the development of education resources and development of the database. It will also need to oversee the evaluation process. This agency will need to work closely with other groups - eg CEC, IMET, GMCT, the NSW Department of Health and its branches eg NaMO - all have a role to play in this. A management committee chaired by a senior clinician needs to be established. This committee will include representatives from expert groups, the various organisations involved and the key clinicians as well as community representatives.

It is recommended that the lead agency be funded to carry out this work. The lead agency will develop an implementation unit that will include a half time staff specialist clinical lead and will be supported by two project officers. This will require investment of $550,000 per annum indexed for CPI for each of the five years of implementation.

Each AHS will need to establish implementation units. Each unit will have a half time staff specialist clinical lead, supported by a CNC and a CNE. The role of the AHS implementation units will be to coordinate the implementation of the recommendations at the AHS level in concert with the lead agency. Funding required

for the AHS implementation will be approximately $450,000 per year indexed for CPI for each of the eight large AHS. Smaller amounts of funding will need to be provided to Justice Health and the Children's Hospital at Westmead. Further work will need to undertaken to identify the resource requirements of ASNSW. Funding for each of these groups is to be for five years.

Funding will be required to develop the database and to undertake the required evaluation. It is estimated that the development of the database will require $100,000 and $20,000 per annum for maintenance and upgrades. The evaluation program is estimated to cost $300,000 per annum for the first three years, $100,000 in the fourth year and $200,000 in the final year of the program. It may be possible within this evaluation framework to look at the CHeReL database to review survival rates at 30 days after an event and one year after an event to determine whether outcomes are changed over time.

The lead agency will need to work with the clinical experts and IMET to ensure that there is appropriate training available for junior medical staff, CMOs and locums as they are all key people in the implementation - it is often these medical staff who are available on site after hours. IMET will require additional funding of $200,000 to undertake this work in the first year and $100,000 per annum for the remaining four years of the program.

Education and training packages need to be identified that target each of the following tier levels:

Tier 1 – generic training for all clinical staff in the recognition, escalation and communication, and early management of the deteriorating patient including BLS; may include a train-the-trainer approach, e-learning and other multimedia packages; toolkit; resource manual; marketing resources

Tier 2 – Specific training for primary care or home team (first line responders) including drills and scenarios, may include simulation, has an assessment process and mechanism for reassessment on an ongoing basis.

Tier 3 - Highly specific, more intense training for a smaller number of clinicians - RRS (secondary responders); package includes advanced clinical diagnostic assessment, procedural and resuscitation skills, includes simulation and appropriate assessment and credentialing of skills.

Each of these tiers of education will include a competency framework that will need to be developed in conjunction with education and clinical experts and assessment of these competencies undertaken on a regular basis. Development of the education programs including production of appropriate resources will require initial funding of $500,000 and then $200,000 in the second year and $100,000 per annum thereafter to deliver the program at all AHS. The proportion of this funding available for the rural AHS will be greater due to the geographical constraints necessitating travel and accommodation expenses. In order to fulfil this detailed program there is an opportunity to work with existing education tools currently available. Where identified education needs are not met by current resources the lead agency will be required to work with appropriate education experts.

It is recommended that the funding requirements detailed above is provided from the NSW Department of Health.

The evidence for error reduction strategies reinforces this multifaceted approach. The Institute of Safe Medicines Practice in Canada reviewed a range of known strategies and developed a hierarchy of effectiveness ranging in decreasing order from:

1. Forcing functions and constraints
2. Automation and computerisation
3. Standardisation and protocols,
4. Checklists and double check systems,
5. Rules and policies
6. Education and information

The proposals recommended in this document target all levels in this hierarchy to ensure a comprehensive and truly multifaceted approach which the evidence suggest has the highest probability of success.

For example:
1. Forcing functions and constraints = standardised observation chart
2. Automation and computerisation = electronic handover tools, other long term solutions currently under investigation
3. Standardisation and protocols = minimum standards prescribed; escalation protocols
4. Checklists and double check systems = data collection and evaluation
5. Rules and policies = supportive policy at a state and local level
6. Education and information = comprehensive education strategy targeting all levels of the system

AHS Role

Many AHS already have in place different components and much of the framework needed to support these initiatives in place such as RRS, education (coordinated through Learning and Development Units) and some have introduced revised observation charts. The main focus of this program is to ensure a coordinated and standardised approach including minimum standards and education supported by central funding. AHS need to ensure that existing resources are utilised to meet the requirements of the program and to ensure that these things are happening. At the AHS level the facilities will be required to implement the program within existing budget.

Timelines

Appropriate timelines need to be defined including:

1. **Coordination**
   a. Lead agency to establish implementation unit within 3 months
   b. AHS teams need to be in place within 4 months of funding
   c. RRS teams in place within 12 months in all facilities

2. **Education**
   a. generic training package (tier 1) identified/developed 6 months
   b. training package tier 2 identified/developed 6 months
   c. training package tier 3 identified/developed 9 months
   d. e-learning package developed 9 months
   e. 50% of tier 2 trained in 12months
   f. 100 -200 tier 3 responders per AHS trained in 18 months
   g. 100% tier 2 trained in 24 months
   h. generic training conducted for all staff (tier 1) within 3 years
   i. retraining to be conducted annually (overseen by AHS L&D)
   j. 100% staff trained at appropriate level in 3-5 years

3. **Data collection**
   a. Database developed in 6 months
   b. Baseline audit completed in 6 months in all facilities
   c. KPIs starting collection 12 months
   d. KPIs collected and reported 24 months

4. **Evaluation**
   a. Evaluators in place at 6 months
   b. interim report 18 months
   c. final report 3 years
   d. QSA questions and verifications at 12, 24 and 36 months

Implementation recommendations:

1. The NSW Department of Health selects the lead agency and provides appropriate resources to the lead agency to coordinate the Between the Flags program.

2. The lead agency will form a clinician-led management committee that will need to work with other groups such as IMET, GMCT, CEC and recognised experts, lead clinicians and consumers.

3. This committee will be chaired by a clinician. Together with the lead agency the chair will report to the Director General.

4. The lead agency will be responsible for developing the database and organising how data will be collected, managed, analysed and reported.

5. The lead agency will need to ensure that the education packages are developed and appropriate for delivery in the NSW health context.

6. The lead agency will coordinate the development of toolkits to support roll out of program.

7. The lead agency will work closely with the Nursing and Midwifery Office of the NSW Department of Health to support their implementation of Essentials of Care and the Take the Lead projects

8. The NSW Department of Health needs to fund each individual AHS to implement the Between the Flags program and their implementation groups will be responsible for delivering education and training at the AHS level.

9. IMET will be responsible for coordinating the development and delivery of relevant education programs for the recognition and management of the deteriorating patient to all levels of junior medical staff working in public hospitals in NSW.

Implementation budget

		YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	TOTAL
Lead Agency	Implementation group	550,000[1]	550,000	550,000	550,000	550,000	2,750,000
	Education development and delivery	500,000	200,000	100,000	100,000	100,000	1,000,000
	Database	100,000	20,000	20,000	20,000	20,000	180,000
	Evaluation	300,000	300,000	300,000	100,000	200,000	1,200,000
	Sub-total	**1,450,000**	**1,070,000**	**970,000**	**770,000**	**870,000**	**5,130,000**
AHS	Implementation group (450,000 per 8 AHS + allowance for rural supplement and for JH, CHW, ASNSW)[2]	4,000,000	4,000,000	4,000,000	4,000,000	4,000,000	20,000,000
	Sub-total	**4,000,000**	**4,000,000**	**4,000,000**	**4,000,000**	**4,000,000**	**20,000,000**
IMET		200,000	100,000	100,000	100,000	100,000	600,000
	Total	**5,650,000**	**5,170,000**	**5,070,000**	**4,870,000**	**4,970,000**	**25,730,000**

Note 1:   Budget allocations need to be indexed for CPI

Note 2:   Details of rural supplement and allocation for Justice Health, ASNSW and CHW to be clarified

Other issues

The literature review, incident analysis and activities undertaken during the Between the Flags project highlighted a number of contributing issues which while not "core" to the recognition and management of the deteriorating patient are no less significant. This section details those identified issues and some potential solutions for consideration by the NSW Department of Health.

1 Serious issues related to on call, supervision and handover were raised through feedback from clinician experts, IIMS and RCA data, and the Between the Flags project. Consideration needs to be given by the NSW Department of Health as to whether the Department or AHS develop minimum standards or guidelines for clinical handover, supervision and on call.

2. The NSW Department of Health in conjunction with the lead agency and clinical experts needs to look at ways in which remote and rural or small facilities may be able to provide different mechanisms to react to deteriorating patient such as direct call to ambulance in small hospitals, telehealth links, or direct support from Medical Retrieval Unit or base hospital.

3 Issues with telecommunication systems were identified through the Between the Flags project including issues with paging systems and a lack of consistency in emergency telephone numbers between healthcare facilities. It is recommended that the NSW Department of Health refer these issues to the appropriate body or branch within the Department to resolve these problems eg
   o Single telephone number for activating an emergency response
   o Review paging systems to improve quality of communication between members of the clinical team
   o Investigate alternate communication devices to improve information transfer between members of the clinical team

4 It was noted during the Between the Flags project that clinical staff placed a strong reliance on automated observation taking equipment and concerns were raised regarding the potential loss of the personal touch in the interaction with patients. It is suggested that a component of the education and training needs to include information about the inherent risks and limitations of automated observation equipment. The project supports the work being done through NaMO

in projects such as Essentials of Care and Take the Lead and recognises that there are opportunities for liaison and coordination between the various programs so that there is consistency between the education programs and issues raised jointly to both programs are taught in a cohesive and integrated way.

5   The evidence of the both the literature and the Between the Flags project suggested that newly graduated medical and nursing staff may lack the confidence and experience to integrate their theoretical knowledge with the clinical situation of the deteriorating patient. It is recommended that the education program developed for Tier 1 staff also be offered to undergraduate education providers to ensure that there is consistency and standardisation of skills and competencies in this area. The NSW Department of Health will need to engage with the relevant registration and education authorities to ensure that these programs are integrated with the core curricula.

6   Another issue raised during the Between the Flags project and reflected in the GMCT CERS document related to the need for early recognition and planning by clinical teams and clear documentation of "Not for CPR" orders or "Advanced Care Directives" so that non-reversible clinical deterioration is not confused with deterioration necessitating escalation or a critical care response [6]. There needs to be further work done to ensure that there are systems in place to support high uptake when appropriate.

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