Full Report ▶Clinical Excellence and Patient Safety

Project Title
Implementation of Critical Emergency Response System (CERS), Queanbeyan.

Name of EQuIP Member Organisation
Southern NSW Local Health District: Queanbeyan Hospital

Department, Unit, Service or Group submitting the project
Emergency Department

Author/s	**Position Title** [If there are more than three authors, please add more rows]
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Maximum length is 2500 word [approximately 5-6 pages].
Charts, tables, maps, diagrams or photographs can be included in this document.
Appendix should not to exceed more than five (5) documents.
Where Appendices are particularly voluminous or long, you may be asked to shorten them.
Please remove all page numbers from Appendices [and other supporting documents] before submitting your Full Report.

ABSTRACT
In order to have a hospital-wide approach to respond to medical emergencies we took a consultative approach to project design. Based on the quality cycle and under the direction of the NUM (ED) and the Director of Medical Services (ED) and with the support of the health service management, we held group meetings to collaboratively re-engineer the CERS response. From these group forums, it was noted that the inpatient staff required up-skilling in advanced life support; that protocols regarding the commencement of adjunct therapy (under the direction of the GP) needed to be developed and that equipment and trolleys needed to be standardised throughout the hospital. It was agreed that senior clinicians would act as role models and mentors in this process; and that an education program re the applied functions of the Standard Adult Observation Chart (SAGO) patient chart was required.

A pre-project evaluation of skill sets in the staff occurred. This demonstrated a lack of advanced life support skills, such as assessing cardiac rhythm strips, assessing dehydration and monitoring the unwell patient. We created an educational program addressing these issues, and mandated inpatient staff compliance with the training. Additionally, we re-credentialed all emergency staff in order to standardise the process. As a further function of feedback from senior team members, Advanced Life Support (ALS) education was introduced to the inpatient nursing staff. The ED teams were also re-credentialed in ALS in order to fulfil a mentoring role during CERS responses.

A cohort of senior ED nurses also reviewed the contents of the resuscitation trolleys for best practice, and educated all staff on the correct use of each item. Trolleys were then checked on a shift by shift basis. Senior nursing staff were made available for ad-hoc education on these items as well as formal training sessions. In order for this education to be successful, the hospital purchased educational aids such as a venepuncture training arm, a resusi-baby, pulmonary models, etc. We also created a designated training area in the ED, where staff were able to access senior team members and equipment in order to practice and gain confidence with these skills. Mock scenarios were conducted without notice and were a very valuable teaching and assessing tool.

Following completion of the education programs and the standardisation of the emergency trolleys, we evaluated the project's impact on CERS responses for one month. During this time, we collected a report from each CERS event, recording the nature of the call and intervention required by the team. After one month, we reviewed and modified the CERS procedure and rolled the process out to all areas of the hospital.

The implementation was overseen by the project two Clinical Nurse Educators making up a one full time equilivant position for a period of six months to review our responses, credential staff with their advanced life support, implement the agreed policy that incorporates the available staff and other resources and test our responses using mock scenarios.

Previously advanced life support credentialing was conducted by an external clinical nurse consultant whose time was limited due to the many demands of her role. The outcome then was 20% of staff were credentialed. By the end of the six months there were 85% of permanent staff credentialed

A CERS bag was developed that contained resuscitation equipment for use where resuscitation trolleys are absent eg in areas of community health and in the car park. This bag is located in the emergency department to allow the team made up of a doctor and a senior registered nurse from the emergency department to take to these locations when required. Other members of the team consist of staff who were either caring for the patient or in the case where the CERS bag is required, selected staff from other areas of the hospital also respond.

The outcome of the project sees our facility with staff who have increase confidence in their role due to the massive injection of education with mock scenarios, the uniform resuscitation trolley throughout the facility and the development of the CERS bag for the isolated areas of the hospital. Ongoing education continues and timeframes are in place for new employees to be credentialed in advance life support and the local critical emergency response systems for our facility. Annual mandatory re-credentialing for advanced life support is now more achievable as assessors are now available in house. The daily checks of the resuscitation trolleys are audited on a monthly basis to ensure compliance checking of equipment. Clinical reviews are conducted on a monthly basis for any CERS calls.

The ultimate outcome, as the centre of all our interventions are to maximise our patient health outcomes, is that more appropriate CERS calls are now made and that our responses are now more coordinated and efficient.

AIM The aim of the project is to reduce incidence of incorrectly identified rapid response calls by 60% within six months, and to significantly increase the number of staff trained in Advance Life Support (ALS) and in the CERS management.

APPLICATION OF EQUIP PRINCIPLES

Consumer / Patient Focus

The focus of the entire project was completely patient focused. Having a coordinated response to any medical emergency within the organization promotes best health outcomes for the patient. Utilizing the colour coded observation chart for all age groups made it very clear to recognise the deteriorating patient. This formed the basis of calling the CERS response.

Prior to the project the problem relating to our CERS response was first spotlighted anecdotally by the senior medical and nursing staff in the Emergency Department. There was an average of 3 CERS responses per day, with very few requiring advanced interventions. Nonetheless, these calls required the senior teams of the Emergency Department to leave the department in response. In turn, this slowed up the processes in the ED. Relationships between the inpatient unit and the emergency department were strained due to a perceived ‘interruption’ to emergency department with ‘false alarms’.

This led to reduced patient care within the emergency department, delaying

- Assessment
- Investigations
- Treatment
- Discharge from emergency

- Admissions to the ward

And increasing patient dissatisfaction and staff frustration

An assessment of the skills and knowledge of staff who responded was conducted and it was identified that current advanced life support skills were a basic requirement. This was then addressed and achieved.

Available equipment was reviewed and uniformity throughout the organization of all resuscitation trolleys was completed.

The CERS team members were identified for their roles to ensure a coordinated response to medical emergencies in all areas of the facility. Having clear expectations of all staff who are skilled and knowledgeable in their role promotes confidence ensuring timely and appropriate interventions for patient care. Thus leading to

Effective Leadership

Recognising existing staff for the role of the CNE is important. It allows staff to grow in their own professional development and promotes a positive culture of worth within the workplace. This supportive environment drew staff to seek the further skills and knowledge provided. Both CNEs appointed making up a full time equivalent staff member brought to the role their own unique qualities which complemented each other and thus enhanced the entire project.

The backbone of any CERS response is to have an effective leader. All nursing and medical staff participating in the CERS team were assessed in advanced life support. Together with the wards person who assisted in cardiac compressions, positioning of the patient if required becoming a gopher is needs arise, and the ambulance officers, the coordinated response was assessed during mock impromptu scenarios. Debriefing and further finetuning occurred improving the effectiveness and efficiency of the response. The confidence of the team as the expectations of each other and themselves became very clear. The team leader's role is crucial to ensure appropriate and timely interventions are implemented. Informal debriefing within the team may result in recommendations that will assist in further improvements for the CERS team.

Continuous Improvement

The CERS responses continue to be monitored. The Emergency Department have two Clinical Nurse Specialists whose focus is to continue with re-credentialing of staff for advanced life support, auditing compliance of checking the resuscitation equipment and conducting clinical reviews of all CERS responses. These processes ensure compliance with standards set and continuous improvement.

Evidence of Outcomes

The aim of this project was to reduce the CERS call-outs for patients not requiring emergency response. Pre-project there were on average 3 CERS calls per day to the inpatient units with minimal intervention and/or resuscitation required. During the 4th week of the trial period, this had gone to 3 in the week, demonstrating a significant decrease in 'false CERS', and inferring an increase in inpatient staff's confidence levels in managing deteriorating or unwell patients.

However, there were other measureable effects, including, for example,

- LOS in ED:
  - pre-project the length of stay in the ED department was 4.09 hours, and post-project is 3.05 hours. While this outcome is not singularly attributable to this project, it is still significant.
- Increased confidence of staff
  - Post-program evaluations indicted all nursing staff from inpatient units developed an increase in ability and confidence in managing unwell patients
- Education rooms in ED
  - We now have a dedicated education room in the ED department that allows medical and nursing staff to have regular formal and informal education

  - The equipment purchased under the project is consistently used by educators to teach and assess new staff to ensure skill continuity
- Increased staff satisfaction at work
  - There is a significant increase in staff satisfaction pre-and post program as measured by staff feedback forms
- Increased team work
  - Anecdotally, there is a greater sense of team between and across the hospital.

Percentage of staff assessed as competent in advanced life support and knowledge of the Critical Emergency Response System for the Queanbeyan Hospital as of 20th March 2012:

Department	***ALS***	***CERS***
Emergency:		
Permanent RNs	81.25%	75%
Casual RNs	71%	71%
Agency	50%	50%
High Dependency Unit	60%	60%
Operating Theatres	20%	20%
Doctors	50%	42%

Striving for Best Practice

Up-skilling all registered nurses in advanced life support created a cohort of staff with skills to assess and implement appropriate responses to deteriorating patients, consequently refining the CERS response process by decreasing the need for staff from the Emergency Department to leave the unit to assist inpatient nurses, ensuring all departments remain staffed. The project's objectives included streamlining CERS responses by improving coordination of individual patient's needs and fast-tracking the diagnosis of seriously ill in-patients. The project also allows benchmarking of evidenced-based interventions in the future.

INNOVATION IN PRACTICE AND PROCESS

It identified very early in the project the need for a two tiered response for the rapid response calls (the RED ZONE in the colour coded observation chart). This tiered response was found to be more effective and appropriate for our facility. As not all patients who have vital signs that fall into the red zone of the colour coded observation chart required the emergency buzzer to be pressed. Therefore the two tiered responses consist of:

1. Those patients who were having a cardio-respiratory arrest or suffering from an immediate life threatening condition such as a post partum haemorrhage, staff were required to press the emergency buzzer to activate the highest level of response.

2. Those patients whose vital signs fall into the RED ZONE in the colour coded observation chart, an urgent medical review/CERS team review must be requested immediately, either by the nurse caring for the patient or the team leader/NUM. This is by phoning the Emergency Department triage nurse during business hours or the after hours coordinator after hours

Previously the emergency buzzer was pressed for both types of patients whose vital signs fell within the RED ZONE. This caused the cry wolf mentality and extremely disruptive for emergency staff.

For the YELLOW ZONE of the colour coded observation chart staff were required to repeat, record and increase the frequency of the observations, implement interventions and assess clinical outcomes and call for a clinical review.

APPLICABILITY TO OTHER SETTINGS

The Clinical Nurse Educators appointed for this project developed learning packages for all participants in the CERS procedure including the medical team and wards persons. These packages are relevant for any rural or remote health facility. One educator also works part time at remote MPS and therefore has a good working knowledge of remote nursing. The other, works part time in the emergency department of a tertiary facility. This allows a wonderful blend of nursing backgrounds that has enhanced the development and implementation of the project.

Appropriate and efficient Critical Emergency Responses Systems can be achieved once all the foundations are addressed. These being:

- The use of SAGO charts as part of our orientation programs for new staff.
- Credentialing of all medical and nursing staff in the CERS team in advanced life support as well as all nursing staff who work in critical care area.
- Ensuring equipment is available and easily accessible for the CERS team
- Ensure once a CERS call is activated that enough staff are still available to care for the remaining patients.
- A list of the contents in the CERS bag is also available for other facilities to develop their own bag

While this project has reached completion, we have embedded down the processes for sustainability. For example, we now have 2 ED CNS/Educators who have in-service in their portfolios and continue to offer high quality education in life support and CERS issues. We also include All staff wishing to work in ED are required to have annual ALS re-credentialing.

The process of checking the emergency trolleys using educational review has been embedded into each unit and data is collected re the checking and maintaining of this equipment.

These changes have all helped to build a culture of confidence for both staff and patients.

From here:

- A register of CERS is now kept in a folder in the trauma bay of the Emergency Department. This identifies the CERS event, the staff involved and the date for the clinical review. The clinical review will be undertaken by the CNSs together with those involved in the response.
- Advanced life support education days are planned for twice a year.
- Increase frequency of basic life support training.
- Ongoing monthly audits of emergency trolleys to ensure compliance will continue.

- Annual re-credentialing for advanced life support will also continue.

The project has a high level of transferability to other facilities. Education packages relating to CERS, together with the assessment tools written for medical, nursing and wards person, are relevant for any rural and remote health service.

Reference list:

Health NSW Government (2012) Between the Flags – SAGO. Salmat. SMR 110.010

T Jacques, M Fisher, K Hillman, M Berry, C Hughes, D Lam, B Manasiev, R Morris, N Nguyen, R Pandit, A Pile and P Saul (2011) DECTECT: Detecting Deterioration, Evaluation, Treatment, Escalation and Communicating In Teams. 3rd edn. Clinical Excellence Commission.