Neonatal Intensive Care Unit

mjdnwqxW

Entry details

Team Contact Surname	Parsons
Team Contact First Name	Justine
Contact Position Title	Clinical Nurse Consultant
Contact Phone Number	+61400163700
Alternative Contact Number	+61249236855
Facility / Dept/ Service unit:	Neonatal Intensive Care Unit

Facility / Dept/ Service unit address

NICU
John Hunter Children's Hospital
Lookout Rd,
New Lambton Heights
NSW 2305

Contact Email Address	Justine.Parsons@health.nsw.gov.au
Number of people in entry team	3

Team Members

Justine Parsons
Natalie Butchard
Larissa Korostenski

Is footage available of this project?	No

Project Name

DETECT Neonate: embedding into NICU culture

Partner Organisation

Clinical Excellence Commission NSW

Abstract

NSW Health mandates DETECT Junior training for paediatric/neonatal clinical staff. Training focuses on 'track and trigger' charts in a paediatric ward environment and therefore didn't meet the training needs or clinical management process for neonatal staff.
A team of clinicians and educators from NICU, John Hunter Children's Hospital developed **DETECT Neonate** in conjunction with HNE LHD Standard 8 Committees and in collaboration with the Clinical Excellence Commission throughout 2020.
The training program is purpose built for NICU or Special Care Unit (SCU), includes criteria for early identification of the deteriorating neonate and standardised pathways for escalating care, consisting of increased surveillance, clinical review or rapid response. The program also involves a monthly audit meeting where trends are noted, compliance monitored and issues identified.
DETECT Neonate was adopted as the clinical deterioration/escalation program for the NICU/SCU in 2021. After 6 months, average numbers of clinical reviews were 30 per month, and rapid responses totalled 8 per month. Unexpectedly, at least one-third of the calls were for patients in NICU, not SCU, possibly reflecting the instability and potential for deterioration in that cohort. The majority of calls related to a deterioration in respiratory status, with some calls related to abdominal pathology.

Innovation and originality - *Maximum Score = 5*

NSW Health issued a Policy Directive in 2015 - Recognition and Management of Patients who are Deteriorating. Failure to recognise and manage patient deterioration is a contributing factor in many adverse events within healthcare. Standard vital sign observation charts were developed by the Clinical Excellence Commission to ensure a visual 'tracking' of patient vital signs. However, specialty units including NICUs were exempt from using these charts, presumably due to the assumption that ICUs offer a level of care and documentation that ensures all episodes of deterioration would be identified and escalated quickly. No alternative standardised system was available for intensive care units.
NICU staff had subsequently raised concerns that a lack of standardised process in identifying any potential deterioration in sick/preterm neonates was a potential patient safety issue. Coupled with the mandatory training requirement to complete DETECT Junior, the need for a neonatal specific program of detection and escalation for deterioration became a top priority. Using the overall DETECT framework and training format, work began in developing clinical triggers for a clinical review or rapid response. (See Attachment 1) Neonatal experts were consulted, and a comprehensive literature search undertaken to achieve consensus on clinical criteria and a process for escalating care. A clinical guideline was completed and certified by HNE Standard 8 Committee, associated documentation developed, and a robust training program established. All nursing and medical staff completed workshops in 2021.

Sustainable - *Maximum Score = 5*

The DETECT Neonate program commenced in NICU in May 2021. Since that time, the program has been continually monitored and audited on a monthly basis. The number of clinical reviews instigated varies from 10-25 per month, and rapid responses may be up to 12 per month. Numbers of calls for review or rapid response vary with NICU patient acuity and occupancy, but it is reasonable to ascertain that the process has become embedded into NICU clinical practice, and has been sustained over the 2 year time period. (See Table 1)

Scalable - *Maximum Score = 5*

DETECT Neonate has enormous capacity for replication in other neonatal services. With services required to identify and develop a Clinical Emergency Response System (CERS) specific to their unit, this forms the foundation of the DETECT Neonate program. An appealing feature of the program is the ease with which the unique aspects of each service can be incoprorated, ensuring fit for purpose.
The NICU JHCH team rolled out the DETECT Neonate program in the Special Care Unit of The Maitland Hospital, ensuring engagement from the unit staff. Training materials and resources are provided, allowing units to become self-sufficient managing the training and ongoing audit requirements.

The CEC are interested in statewide applicability, and the NICU has been approached by other LHD's for access to the program.

Better patient outcomes - *Maximum Score = 5*

A standardised program for detecting and responding to deterioration, as well as providing a pathway for managing escalation in the NICU/SCU is both feasible and appropriate. The program supports timely recognition of signs and symptoms along with early response and escalation. It also provides clear accountability for nursing and medical staff, as well as an ability to measure and track NICU's performance within National Standard 8.
In 2022 alone, over 125 calls for clinical review were received, infants examined and reviewed within 30 mins, and appropriate plans made to escalate care as needed. Regarding rapid responses, over 52 calls were received and responded to within 5 mins. Most calls were regarding changes in respiratory status, tachy/bradycardia and concerns regarding abdominal pathology. Calls were made once infants met threshold criteria, and detection of potential deterioration considered. Timely escalation of care via a standardised, track and trigger program has the potential to save infant lives.

Productivity and value for money - *Maximum Score = 5*

The Deteriorating Patient Safety Net System, including DETECT Neonate, addresses criteria within the Australian Commission on Safety and Quality in Health Care's Recognising and Responding to Acute Deterioration Standard.
DETECT Neonate also provides a measurement strategy to monitor performance and effectiveness in detecting deterioration, audited monthly.
In 2022, 125 calls for clinical review were received, infants examined and reviewed within 30 mins, and appropriate plans made to escalate care as needed. Regarding rapid responses, 52 calls were received and responded to within 5 mins.

Collaboration - *Maximum Score = 1*

The NICU team worked together strategically to identify the issues and risks, investigate solutions, develop changes and embed a significant clinical program. By ensuring team members were from a variety of professional disciplines, the natural skill sets of each contributed to production of a robust and quality practice improvement, focused on patient safety.

Openness - *Maximum Score = 1*

The NICU DETECT Neonate team worked hard to engage all stakeholders and ensure their unique points of view were heard and recorded throughout the process of developing the program. Feedback was invited and acted upon. Ensuring opportunities to seek out the opinion of key staff, in collaboration with using NSW Health guidelines and recommendations, meant that a robust and comprehensive program could be devised that was fit for purpose.

Respect - *Maximum Score = 1*

The project provided numerous opportunities for staff to engage with courtesy and compassion throughout the project build. Through meetings, emails and presentations/discussions the team was required to communicate in ways that demonstrated value in the opinions of others, and ensuried stakeholder engagement.
The program itself provides focus to the REACH call system which encourages patient families to speak up for their loved ones when concerns arise and to ensure their voices are heard. In this way, respect for patients, families and staff forms the foundation of the DETECT Neonate program.

Empowerment - *Maximum Score = 1*

DETECT Neonate actively seeks to empower staff in seeking an escalation in care for their patients. Fundamental to the success of the program is the process of identifying suspected deterioration and making a call for clinical review. Having a standardised and structured approach ensures staff have a voice, and are empowered to raise alerts for patient safety.
The REACH call system being built into the program also ensures families are empowered to speak up with confidence as partners in the health care being provided.

Teamwork and Partnerships - *Maximum Score = 1*

The NICU DETECT Neonate team worked closely with stakeholders - Standard 8 Committee (see ISBAR 1 attached), Clinical Governance and JHCH Executive, as well as staff of the NICU. By ensuring team members were from a variety of professional

disciplines, the natural skill sets of each contributed to production of a robust and quality practice improvement, focused on patient safety.

Strategic relevance to Future Health Please tick each appropriate priority your project is linked to; please note you can select more than one:	✓ Safe care is delivered across all settings
Facility / Dept / Service Manager Name	Natalie Butchard
Facility / Dept / Service Manager Position Title	Nurse Manager Newborn Services
Facility / Dept / Service Manager Email Address	natalie.butchard@health.nsw.gov.au

Team Photo (required)

Log in to hnehealth.awardsplatform.com to see complete entry attachments.

PDF	PDF
Zones for DETEC... 490 KiB	2022 Graph.pdf 160 KiB

Increased Surveillance for Current Neonatal Inpatients (Blue Zone)

Response Criteria

- Changing Observations
- Staff or Family Concern

Actions Required

- **Inform Unit Team Leader**
- Initiate appropriate clinical care, including consideration for additional monitoring
- Consider haematological investigation (including blood gas)
- Monitor oxygen requirement needs
- Manage pain, temperature, fluids, patient comfort and/or distress
- Inform family of plan of care
- Document medical/clinical management plan in medical record

Clinical Review for Current Neonatal Inpatients (Yellow Zone)

Response Criteria

Changing clinical condition, for example:

- New or worsening work of breathing (WOB)
- Persistent increase (≥ 2 hours) in FiO_2 need ≥ 10%
- Apnoeas requiring stimulation (*consideration to individual infant must be applied*)
- Increasing Apnoea / Bradycardia / Desaturation episodes
- Trending rising or falling BP
- Persistent tachycardia (HR≥ 200bpm)
- Temperature instability
- Lethargy or irritability
- BGL between 1.7mmol/L and 2.5mmol/L
- Abnormal neonatal movements
- New or worsening gastro-intestinal symptoms (e.g. abdominal distension, bilious vomiting)

Escalate to "clinical review" if staff or parental concern for the neonate's condition at any time

Actions Required

- **Inform NNP/MO and Unit Team Leader**
- **Neonatal Nurse Practitioner (NNP)/NICU Registrar must review patient within 30 minutes**
- Continue to record baseline observations at a minimum of hourly
- Consider transfer to NICU (*if applicable*)
- Consider haematological investigation (including blood gas)
- Monitor oxygen requirement needs
- Manage pain, temperature, fluids, patient comfort and/or distress
- Inform family of plan of care
- Complete Clinical Review Record and place in patient notes (see Figure 1)
- Document medical/clinical management plan in medical record

If infant has ≥ 3 'yellow zone' criteria or
Deterioration continues or
Review has not occurred in 30 minutes,
Escalate to Rapid Response

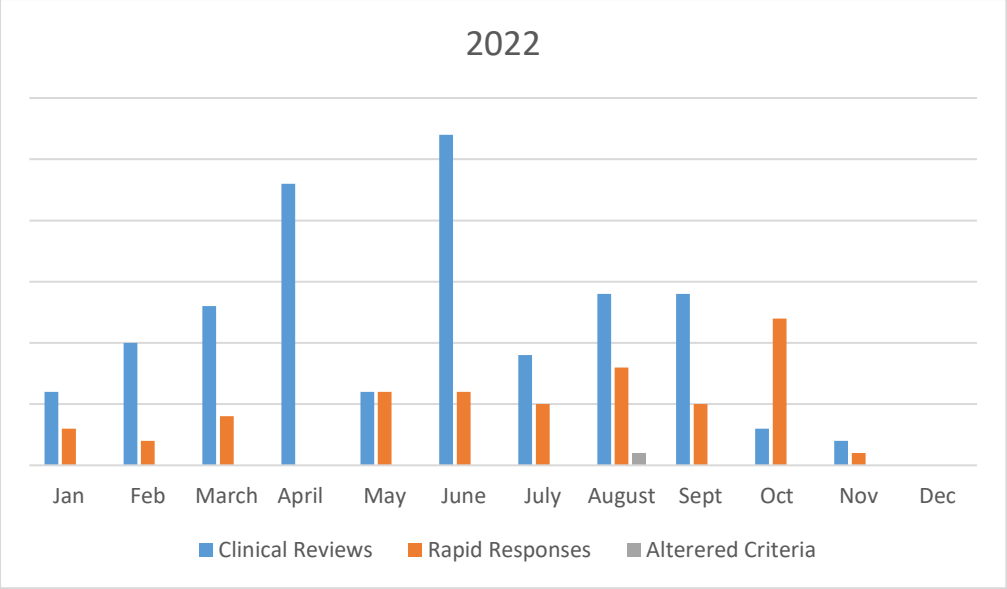
Rapid Response for Current Neonatal Inpatients (Red Zone)

Response Criteria

- **If clinical deterioration or clinical review has not occurred within 30 minutes, escalate to Rapid Response by activating the emergency alarm system**
- Apnoea/s requiring positive pressure ventilation (PPV)
- Persistent increase (≥ 1 hour) in FiO_2 need ≥ 20%
- New or Increased seizure activity despite treatment
- Abnormal blood gas (≤ pH 7.10 or ≥ 7.50)
- Persistent Lactate ≥ 4mmol/L or Base deficit ≥ 8mmol/L
- BGL ≤ 1.6mmol/L that has not responded to treatment
- Hypotension meeting criteria for inotropic support despite volume expansion
- Unintentional hypothermia ≤ 35°C
- If the Neonate has had > 2 clinical reviews within past 24 hours

Actions Required

- NNP/Registrar must review patient urgently
- Neonatal Fellow/Consultant must be informed of rapid response within 15 minutes
- Commence continuous monitoring, observations recorded at a minimum of hourly frequently
- Consider transfer to NICU (*if applicable*)
- Capillary or arterial blood gas (*if not yet attended*)
- Inform family of plan of care
- Complete Rapid Response Record and place in patient notes (see Figure 2)
- Document medical/clinical management plan in medical record


2022
Jan
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Clinical Reviews
Rapid Responses
Alterered Criteria