GUIDELINE

Recognising and Responding to Clinical Deterioration

Scope (Staff):	Nursing and Medical Staff
Scope (Area):	NICU KEMH, NICU PCH, NETS WA

Child Safe Organisation Statement of Commitment

CAHS commits to being a child safe organisation by applying the National Principles for Child Safe Organisations. This is a commitment to a strong culture supported by robust policies and procedures to reduce the likelihood of harm to children and young people.

This document should be read in conjunction with this disclaimer

Aim

Outlines the processes and systems in place in relation to staff recognising and responding to clinical deterioration. To enhance outcomes of neonatal patients through improved **recognition of abnormal vital signs** associated with a potential clinical deterioration. To **establish** and **document a response plan** enabling appropriate interventions when observations or results fall outside the expected/planned range.

Risk

Failure to recognise and respond to acute deterioration may lead to adverse outcomes and increased length of stay.

Background

Research indicates that signs of clinical and physiological instability often precede a cardio-respiratory arrest. In many cases these events may be prevented if the early signs of deterioration are recognised and acted upon before the patient deteriorates beyond the point of reversibility.

The early signs of deterioration include changes in respiratory rate, oxygen saturation, blood pressure, heart rate, temperature and conscious/mental status which may go unrecognised.

Key points

Seek immediate senior staff advice if there is a clear change in a baby's condition or an unexpected abnormal result or parental concern.

Note: The duty Consultant is to be advised immediately if there is a delay in carrying out any order/ treatment or investigations.

Recording Vital Signs and Recognising Deterioration

Utilise MR488.02 "Neonatal Clinical Deterioration and Sepsis Pathway" to support recognition and management of sepsis in unwell and/or deteriorating infants.

Observations must be attended on all neonatal patients as per the Monitoring, Observation and Measurement Frequency guideline, and documented on the Neonatal Observation Chart and Nursing Assessment - MR489 or 491.

The six core physiological (and the minimum) vital signs to be recorded are-

- respiratory rate
- oxygen saturations
- blood pressure
- heart rate
- temperature and
- level of consciousness.

Urine output and pain should also be assessed regularly.

Blood glucose, electrolyte and blood gas levels may/could be considered either as a vital sign or be performed as a result of deteriorating core vital signs.

Parental Concerns

Parents are the most consistent caregivers in the neonates' life. Parental concerns regarding the clinical condition of their child must be taking into consideration when reviewing observations and behaviours.

Parents are to be made aware of the escalation pathway through the shift coordinator or Aishwarya's Care Call if they believe their concerns are not being addressed and their child's condition is worsening.

How to Recognise and Respond to a Deteriorating Neonate

Doctors and nurses should use the guidelines/tables below to identify clinical deterioration and obtain the appropriate action or review from senior staff. If you or the infant's family have clinical concern, do not hesitate to raise the concerns with the rest of the team.

Increased Surveillance

Response Criteria	Actions Required
• Changing observations • You (or a family member / carer) are generally worried about your infant	• Inform Shift Coordinator • Carry out appropriate interventions as prescribed • Record observations at least every 2 hours • Consider blood gas • Monitor oxygen requirement • Manage fever, pain, fluids, distress

Shift Coordinator Review

Response Criteria	Actions Required
• Instability characterized by rising FiO_2, more significant apnoea/bradycardic/desaturation episodes, rising or falling blood pressure, temperature instability (increased or decreased), lethargy or irritability, or blood gas, electrolyte or PGL outside prescribed limits • You (or a family member/carer) are generally worried about the infant but they do not meet the above criteria	• Shift Coordinator must review patient • Record observations at least every hour • Repeat blood gas • Monitor oxygen requirement • Manage fever, pain, fluids, distress • If deterioration continues immediately escalate to medical review

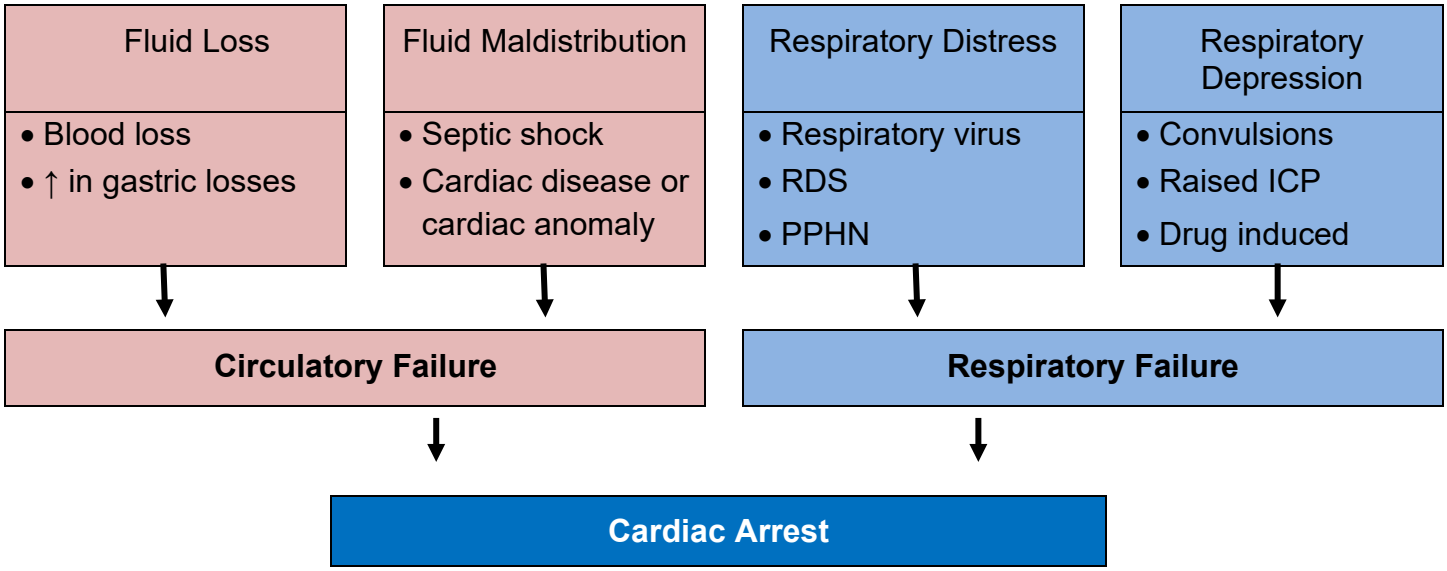
Medical Review

Response Criteria	Actions Required
• New or worsening increased work of breathing • Increased rate of apnoea/ bradycardia/desaturation episodes • New drop in SaO_2 consistently <85% • New increase in FiO_2 by > 0.1 • A clear change in blood pressure (up or down) • Any seizures • Abnormal blood gas (≤ pH 7.25) • Lactate >4mmol/L or Base Deficit >8 • PGL <2.6mmol/L and symptomatic (lethargic or jittery) • Temp >38 or <36 °C • You (or a family member/carer) think that the infant requires medical review but they do not meet the above criteria	• Contact registrar (page/vocera/phone) with infant's name, location and contact number, requesting review within 15 minutes • Commence continuous monitoring and record observations • If medical review not attended within 15 minutes, escalate to SR or Consultant • If ongoing deterioration initiate Code Blue Paediatric Emergency Call • **Repeat any unexpected abnormal blood gas thought to be 'wrong' (e.g. poor collect, machine error) within 30 minutes** • **CONSIDER SEPSIS:** Refer to Clinical Deterioration and Sepsis Pathway MR 488.01

Code Blue Paediatric Emergency Call

Response Criteria	Actions Required
• Airway obstruction causing cyanosis/bradycardia • Respiratory or cardiac arrest • Sudden fall in level of consciousness • New drop in SaO_2 requiring bag and mask ventilation • Seizure, obstruction causing cyanosis/bradycardia • You (or a family member/carer) think that the infant needs immediate review but they do not meet the above criteria	• Initiate neonatal resuscitation • Call immediately for medical and nurse assistance • If medical staff not present in NICU, place Code Blue Paediatric Emergency Call (via 55) • **CONSIDER SEPSIS**: Refer to Clinical Deterioration and Sepsis Pathway MR 488.01

Pathways Leading to Cardiac Arrest



Neonatal Resuscitation in the NICU

Basic Life Support

D	Danger?
R	Responsive?
S	Send for help
A	Open Airway
B	Normal Breathing? If No, commence IPPV
C	If Heart rate <60 bpm after 30-60 seconds of IPPV Commence cardiac compressions Ratio 3:1 and ensure 100% oxygen is being used.
D	Consider Adrenaline 1:10,000, see Resuscitation: Neonatal guideline. Manual defibrillator if ventricular fibrillation or tachycardia is present. Ensure help is coming.
Continue CPR until responsiveness or normal breathing returns	

Roles in Resuscitation

First Responder

1. Check for Danger to self, patient or other people.
2. Assess responsiveness
3. If unresponsive:
    - Call for assistance. Activate emergency assistance button/ ask someone to call a Doctor and the Coordinator. Do not leave patient.
    - Note the time of patient collapse. Turn on timer on monitor.
    - Commence basic life support. Maintain airway until Doctor arrives, then assist with intubation.

Second Responder

1. Collect resuscitation trolley, set up for intubation and end tidal CO_2 monitoring.
2. Assist with resuscitation, commence cardiac compressions if required (turn off pressure mattress if in use). Support First Responder.
3. Allocate Nurse to record events on Resuscitation Record (MR 488.1).

Third Responder

1. If Medical staff are not present or need assistance Dial 55; State 'Code Blue emergency. Identify the exact site and state your name. Following this, call the on call Neonatologist if not present.
2. Collect Medication cart

3. Commence drawing up and labelling:
    - Adrenaline **1:10,000**
    - 0.9% sodium chloride for flushes and bolus.
    - Other drugs and infusions i.e. sedation and inotropes as required
4. Prepare for IV access insertion, (consider umbilical or intraosseous routes if clinically indicated). Consider taking blood samples including blood culture, CRP, FBC and blood gas,+/- antibiotics if MR 488.01 commenced.

Other staff

1. Support Third responder to check medications and set up for lines.
2. Remove excess furniture from the immediate area to facilitate access.
3. Ensure privacy and support is provided for family members who may be present. Inform family if they are not present. Where available a support person is to be allocated to stay with the family during this time and is to provide frequent and accurate updates using plain language.
4. Ensure the care of other infants within the unit continues.
5. If at NICU PMH/PCH - Following the arrival of the PICU team
    - Inform Code Blue team of situation
    - Allocate a Resus Lead (This should be the senior most doctor present either NICU or PICU).
    - Ward staff should continue to assist in the resuscitation as directed by the resuscitation leader.
6. Set up Ventilators and consider need for other equipment, i.e. Nitric, Sensormedics, JET.

Role of the Coordinator:

To ensure staff are aware of their roles and provide support. Facilitate coordination of the resus roles, teams and equipment. Facilitate handover to PICU team if required.

Consider:

The need for consultation with other treating Specialties, i.e.PICU Consultant for ECMO considerations.

Clinical Handover

Refer to Clinical Handover guideline.

Good handover is essential to recognising and responding to clinical deterioration.

All health practitioners are to handover the deteriorating patient using **i S o B A R** (**i**dentify**, S**ituation**, O**bservations, **B**ackground, **A**gree on a plan, **R**ead back)
to assist the communication process when accountability and responsibility for patient care is transferred.

Related CAHS internal policies, procedures and guidelines

CAHS Recognising and Responding to Acute Deterioration

Neonatal Clinical Guideline –

- Clinical Handover
- Intraosseous Needle: Insertion and Care
- Monitoring, Observation and Measurement Frequency
- Resuscitation: Neonatal

References and related external legislation, policies, and guidelines

1. Recognising and Responding to Acute Deterioration Policy WA Health Mandatory Policy MP 0171/22
2. National Safety and Quality Health Service Recognising and Responding to Acute Deterioration (NSQHS Standards)
3. Australian Commission on Safety and Quality in Health Care Sepsis Clinical Care Standard

This document can be made available in alternative formats on request.

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