Royal Hospital for Women (RHW)
NEONATAL BUSINESS RULE
COVER SHEET

Health
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NAME OF DOCUMENT	Deteriorating Neonate – Recognition and Management within Newborn Care Centre
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SUMMARY	To facilitate the early recognition and management of the deteriorating neonate who is admitted within Newborn Care Centre.
Key Words	Deterioration, Neonate, Observation, Clinical Review, Rapid Response, Code Blue, CERS, REACH

Deteriorating Neonate – Recognition and Management inside Newborn Care Centre

RHW CLIN105

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RHW CLIN105

1 BACKGROUND

Early recognition and management of the deteriorating neonate is critical for clinicians working within Newborn Care Centre. This CBR outlines standard observation requirements and the processes for escalating clinical concerns affecting the neonate.

NOTE:
The Standard Neonatal Observation Chart (SNOC) is not used within NCC due to the wide range and differences in expected observation ranges across these patient groups (including preterm neonates, term neonates, surgical neonates and neonates requiring specialist care).

Skilled nursing care and appropriate assessment are essential for detecting changes and deterioration in neonates. This includes identifying changes in observations that fall outside of normal limits for that patient. If a medical officer or nurse practitioner cannot be located within Newborn Care Centre during escalation, Clinical Emergency Response System (CERS) processes should be followed (call 2222 and state whether you require a Neonatal Clinical Review, Rapid Response or CODE BLUE).

2 RESPONSIBILITIES

2.1 Staff

2.1.1 Medical

- Recognise and respond to acute deterioration.
- Initiate a Code Blue call for any admitted neonate.
- Respond within required time frame to Clinical Emergency Response System (CERS) calls.
- Conduct an A-I (Airway, Breathing, Circulation, Disability, Exposure, Fluids, Glucose, Holistic and Infection) assessment on the neonate.
- Implement appropriate care within Scope of Practice, including Basic Life Support (BLS) or Advanced Life Support (ALS) (if skilled) as clinically indicated.
- Escalate the response at any time if the condition continues to worsen (e.g. escalate to Senior Consultant/ Fellow/ Neonatal Nurse Practitioner [NNP]).
- Document assessment, intervention, management plan and outcome in eRIC
- Notify the parent/carer of the deterioration/CERS activation and the outcome.

- If an issue is identified around recognition and response to deterioration, or processes outlined in this CBR, complete an Incident Management System (IMS+) notification and document in eRIC notes.

2.1.2 Nursing

- Recognise and respond to acute deterioration in accordance with the patient assessment/ clinical condition.
- Conduct an A-I assessment on the neonate. Continue to reassess the patient as clinically indicated.
- Escalate clinical concerns/deterioration to appropriate medical officer (resident medical officer [RMO], registrar, fellow, NNP, consultant) or initiate a CERS call (Clinical Review/Rapid Response/Code Blue) if they are not present in the unit.
- Inform clinical NUM or team leader of clinical concerns/deterioration.
- Implement appropriate care within Scope of Practice, including Basic BLS where clinically indicated.
- Increase frequency of observations, as indicated by the clinical condition.
- Check and maintain Emergency equipment and be aware of nearest Neonatal Emergency Trolley and Defibrillator.
- Escalate response at any time if the neonate's condition deteriorates.
- Document all Clinical Review and Rapid Response calls in eRIC or on the Emergency Resuscitation Record (paper).
- Notify the parent/ carer of the deterioration/CERS activation and the outcome of the review, and/or change of location.
- If an issue is identified around recognition and response to deterioration, or processes outlined in this CBR, complete an IMS+ notification and document in eMR notes.

2 PROCEDURE

3.1 Equipment

- Dräger Infinity M540 monitor
- Electrocardiograph (ECG) leads
- Massimo pulse oximetry monitor (for neonate's requiring oxygen saturation monitoring)
- Saturation probe and cover
- Stethoscope
- Thermometer
- Appropriately sized blood pressure cuff
- Neopuff™ or Self- Inflating Ambu-Bag with appropriately sized face mask
- Neonatal resuscitation trolley
- Suction catheter (size 10 or 12 Fr) attached to wall suction
- Hand held glucometer

3.2 Clinical Practice

3.2.1 Standard observation requirements

Patient	Required Observations and interval/s
New admission	Systematic examination (eg. A-I systematic assessment), Heart Rate (HR), Respiratory Rate (RR), oxygen saturation (SpO2), Capillary Refill Time (CRT), Blood Glucose Level (BGL)**, Blood Pressure (BP), work of breathing (WOB) assessment all to be completed on admission/arrival. **for a newborn neonate just delivered, BGL to be completed between 45 minutes – 2 hours of life to allow transition after birth.
Neonate nursed in Level 3 (NICU)	HR, RR, SpO2, skin temperature probe (crib) and Intra- Arterial Line (IAL) (if applicable) – continuous monitoring. BP* (cuff) and axilla temperature with cares (6-8 hourly [cares may be 12 hourly in special circumstances deemed appropriate by NCC team]) Capillary blood gas daily, or as clinically required. BGL 4-6 hourly first 3-7 days then once or twice a day thereafter (until off intravenous fluids or BGLs stable)** *BP may need to be completed more frequently in neonates <26 weeks or those who are unwell, seek clarification with medical officer **For neonates on long term parenteral nutrition (PN) BGL can be performed on an as required basis
Neonate nursed in Level 2A (Special Care)	HR, RR, SpO2 – continuous monitoring BP (cuff) and axilla temperature with cares (6-8 hourly) Skin temperature monitoring (if temperature unstable)

	BGL 4-6 hourly first 3-7 days then once or twice a day thereafter (until off intravenous fluids or BGLs stable)** Stable neonates ≥35 weeks may no longer require continuous monitoring and can be nursed as per Level 2B observations **For neonates on long term PN BGL can be performed on an as required basis
Neonate nursed in Level 2B (Transitional Care)	HR, RR, oxygen saturation and axilla temperature – 6 hourly or with cares. Continuous HR, RR, SpO2 monitoring for neonate's still receiving caffeine and to continue for 5-7 days after cessation of caffeine.
Post-operative/Recovery Neonate	Systematic examination (eg. A-I systematic assessment), HR, RR, SpO2, CRT, BGL, BP, WOB all to be completed on admission/arrival HR, RR, SpO2 – continuous monitoring thereafter BP every 15 minutes for first hour (cuff or IAL), BP every 30 minutes for next hour, hourly BP until 12 hours post-operative, then 6-8 hourly. BGL – 6 hourly or as prescribed by medical officer. N- PASS score- 2 hourly for first 24 hours, 4 hourly for second 24 hours 4 hourly whilst receiving any analgesic infusions 4 hourly whilst any indwelling lines/drains in place 30 minutes post any pain relief intervention Other observations as per surgical requirements.
Neonate's being transferred out (to theatres, postnatal ward or to another hospital) or discharged home	Neonates must have a full set of observations including HR, RR, SpO2, WOB, CRT, axilla temperature. BGL at the discretion of medical officer or clinical indication

3.2.2 Clinical Review

- Initiate a clinical review if a neonate is found to have any of the following or has changes in observations that include:
  - Decreased SpO2

- Increasing oxygen requirement
- Increased frequency of desaturations
- Bradycardias
- Apnoeas
- Increased HR above normal range (>180 bpm)
- Increased RR above normal range (>60 breaths/minute)
- BGL <2.6 mmol/L or > 10 mmol/L
- Increased WOB
- Low BP (mean arterial pressure < gestational age of neonate)
- Change in tone, alertness/arousal or activity
- Pale/mottled appearance
- Blood gas parameters outside of acceptable range
- Temperature instability (<36.3 or >37.4)
- New or increasing pain
- Increasing frequency of vomiting or feed intolerance
- Increasing abdominal distention
- Weight loss >10% of birth weight
- Neonates who appear jaundiced

- Escalate to medical officer or NNP on the unit for review of neonate within 30 minutes.
- Call a Clinical Review on 2222 and request for neonatal clinical review NCC if a medical officer or NNP is not present on the unit.
- Inform clinical NUM or team leader (TL) of review and continue to monitor and observe neonate.
- Request for increased frequency or additional observations as part of Clinical Review including blood gas, increased monitoring of BP, or commencement of SpO2 or HR monitoring (if not already monitored).
- Escalate to medical officer or NNP for a review within 5 minutes on the unit if neonate further deteriorates whilst waiting for 30-minute review
- Call 2222 and request a Neonatal Rapid Response if no medical officer or NNP present on the unit.

3.2.3 Rapid Response

- If a neonate is found to have any of the following or has changes in observation that include:
  - Profound, prolonged or frequent desaturations
  - Prolonged apnoea
  - Profound bradycardia (<60 bpm)
  - Tachycardia (>200 bpm unrelated to neonate's arousal)
  - BSL <2.0 mmol/L
  - Moderate to severe WOB
  - Sudden drop in BP (mean arterial pressure >5 mmHg below gestational age)
  - Any suspected seizure activity (abnormal repetitive movements, desaturations/bradycardias)
  - Clinical suspicion of sepsis
  - White extremity
  - Significant bleeding
  - Significant alteration in blood gas values (e.g. pH <7.2, pCO2 >65, lactate >2.5)
  - Discoloured gastric aspirates or vomits (bilious, coffee ground or blood)

- Abdominal distention with colour change of abdomen (dusky/grey abdomen)
- Fresh blood in stools
- Fresh blood in Endotracheal Tube (ETT) aspirates/suctioning consistent with pulmonary haemorrhage
- Suspicion of subgaleal haemorrhage as identified through scalp observations

- Stay with neonate and immediately request another staff member to escalate to unit medical officer or NNP for review within 5 minutes.
- Inform clinical NUM or TL of need for review.
- Call 2222 and request a Neonatal Rapid Review NCC if medical officer or NNP is not present in the unit.
- Provide support to neonate (blow over oxygen, PEEP or IPPV, suctioning) as required.
- If neonate deteriorates further whilst waiting for review:
  - Commence Basic Life Support
  - Request staff member to escalate to a CODE BLUE to unit medical officer or NNP
  - Request a staff member to get the red Neonatal Resuscitation trolley
  - If medical officer or nurse practitioner are not present on the unit, call 2222 and request a Neonatal CODE BLUE NCC

3.2.4 Code Blue

- Any neonate experiencing any of the following should be treated as an emergency:
  - Floppy and unresponsive
  - Profound seizure activity
  - No respiratory effort or profound apnoea prolonged for >1 minute and not responsive to stimulation
  - Prolonged and profound bradycardia (<60 bpm)
  - Cyanosis
  - Suspected accidental extubation
- Stay with neonate and commence Basic Life Support using Neonatal Basic Life Support Algorithm (Appendix 1).
- Second staff member to immediately escalate to unit medical officer or NNP as a CODE BLUE requiring immediate action.
- Request staff member to get red Neonatal Resuscitation Trolley.
- If medical officer or nurse practitioner is not present on the unit:
  - call 2222 and state:
  - Neonatal CODE BLUE
  - Your location (Newborn Care Centre, Royal Hospital for Women, bed number)
- Commence documentation on the Neonatal Resuscitation Chart.

3.2.5 Altered Calling Criteria

- For any neonate who is likely to experience frequent or chronic changes to their observation limits secondary to an illness/disease process, alterations can be made for escalation of their care based on these findings.
- These must be documented in the neonate's notes (eRIC) by a Neonatal Consultant or a Neonatal Fellow/NNP (in conjunction with the Consultant).
- These should be reviewed daily on medical rounds to ensure these alterations remain appropriate for the neonate's clinical state.

3.2.6 REACH program

- If a parent/carer feels there has been a clinical deterioration in their neonate or is concerned about their neonate, they can escalate their concerns through the REACH program.
- Register concern about patient by following REACH poster (Appendix 3)
- Activate a REACH Call by dialling:
  - **2222** from bedside telephone or
  - **02 9382 6111** from a mobile telephone
- Once activated, the switch operator will page NUM (in hours) of where the patient is located, or After-Hours Nurse Manager (AHNM) (out of hours) to review the patient within 30 minutes
- If the family members or carers remain worried or concerns are not met, page the medical registrar/NNP/fellow/consultant of the patient. This is carried out by the NUM or AHNM. The medical team must review the patient within 30 minutes.
- Discuss assessment findings, treatment plan and actions with the patient, their family member or carer in addition to documentation in medical record.

3.3 Documentation

- eRIC
- Neonatal Resuscitation Chart

3.4 Abbreviations

SNOC	Standard Neonatal Observation Chart	CERS	Clinical Emergency Response System
A-I	Airway, Breathing, Circulation, Disability, Exposure, Fluids, Glucose, Holistic and Infection)	BLS	Basic Life Support
ALS	Advanced Life Support	NNP	Neonatal Nurse Practitioner
IMS+	Incident Management System	RMO	Resident Medical Officer
NUM	Nursing Unit Manager	ECG	Electrocardiograph
Fr	French	HR	Heart Rate
RR	Respiratory Rate	SpO2	Oxygen Saturation
CRT	Capillary Refill Time	BGL	Blood Glucose Level
BP	Blood Pressure	WOB	Work of Breathing
IAL	Invasive Arterial Line	PN	Parenteral Nutrition
N-PASS	Neonatal Pain Agitation and Sedation Scale	TL	Team Leader
ETT	Endotracheal tube	PEEP	Positive End Expiratory Pressure
IPPV	Intermittent Positive Pressure Ventilation	REACH	Recognise, Engage, Act, Call, Help

AHNM	After Hours Nurse Manager		

3.5 Related Policies/procedures

- RHW NCC Medical CBR- Admission of a Neonate to Newborn Care Centre (NCC)
- RHW NCC Medical CBR- Golden Hours Protocol- Management of Preterm Infants <32 weeks in the First 2 Hours of Life
- RHW NCC Medical CBR- Preterm Infants – Delivery Management for Extremely Preterm Infants less than 26 Weeks Gestation
- RHW NCC Nursing CBR- Arterial Line Blood Sampling
- RHW NCC Nursing CBR- Heel Prick for Blood Sampling
- RHW NCC Nursing CBR- Post-Operative Care
- RHW NCC Nursing CBR- N-PASS – Neonatal Pain and Sedation Score
- RHW CBR- Hypoglycaemia - Monitoring and management of at risk neonates
- RHW LOP- REACH Recognise, Engage, Act, Call, Help is on the way
- NSW Health Policy Directive- Recognition and management of patients who are deteriorating PD2020_018
- SESLHD- Management of the Deteriorating NEONATAL inpatient SESLHDPR/340

3.6 References

1. NSW Health. Recognition and management of patients who are deteriorating PD2020_018 [Internet]. 2020. Accessed 10.9.24 from: https://www1.health.nsw.gov.au/pds/ActivePDSDocuments/PD2020_018.pdf
2. South Eastern Sydney Local Health District. Management of the Deteriorating NEONATAL inpatient SESLHDPR/340. Accessed 10.9.24 from: https://www.seslhd.health.nsw.gov.au/sites/default/files/documents/SESLHDPR%20340%20-%20Management%20of%20the%20Deteriorating%20NEONATAL%20inpatient_0.pdf
3. Royal Hospital for Women. REACH Recognise, Engage, Act, Call, Help is on the way. LOP. Accessed 12.9.24 https://www.seslhd.health.nsw.gov.au/sites/default/files/documents/Reach.pdf

4 ABORIGINAL HEALTH IMPACT STATEMENT DOCUMENTATION

- Considerations for culturally safe and appropriate care provision have been made in the development of this Business Rule and will be accounted for in its implementation.
- When clinical risks are identified for an Aboriginal and/or Torres Strait Islander woman or family, they may require additional supports. This may include Aboriginal health professionals such as Aboriginal liaison officers, health workers or other culturally specific services

5 CULTURAL SUPPORT

- For a Culturally and Linguistically Diverse CALD woman, notify the nominated cross-cultural health worker during Monday to Friday business hours
- If the woman is from a non-English speaking background, call the interpreter service: NSW Ministry of Health Policy Directive PD2017_044-Interpreters Standard Procedures for Working with Health Care Interpreters.

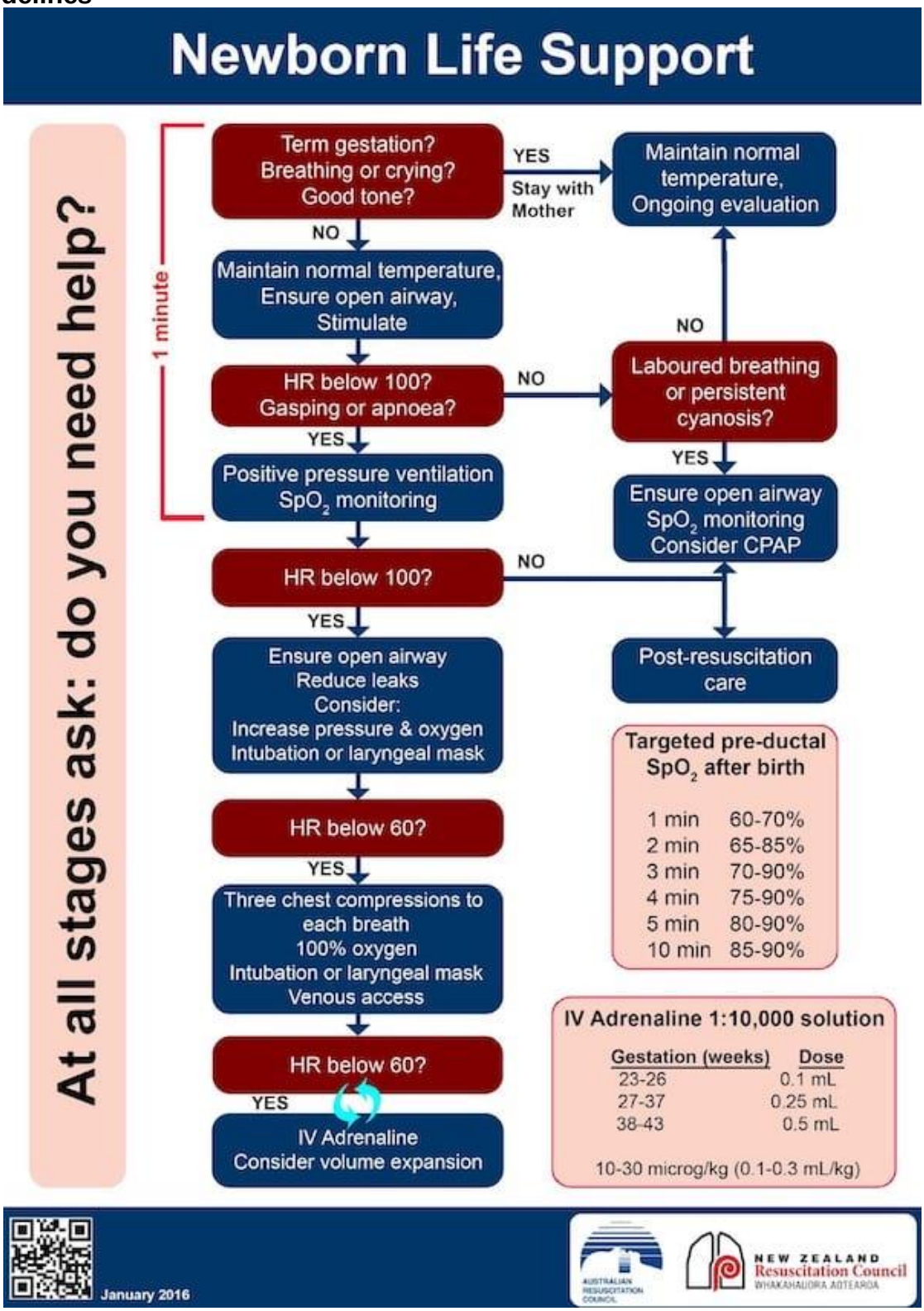
6 NATIONAL STANDARDS

- Standard 1 Clinical Governance
- Standard 2 Partnering with Consumers
- Standard 5 Comprehensive Care
- Standard 6 Communicating for Safety
- Standard 8 Recognising and Responding to Acute Deterioration

7 REVISION AND APPROVAL HISTORY

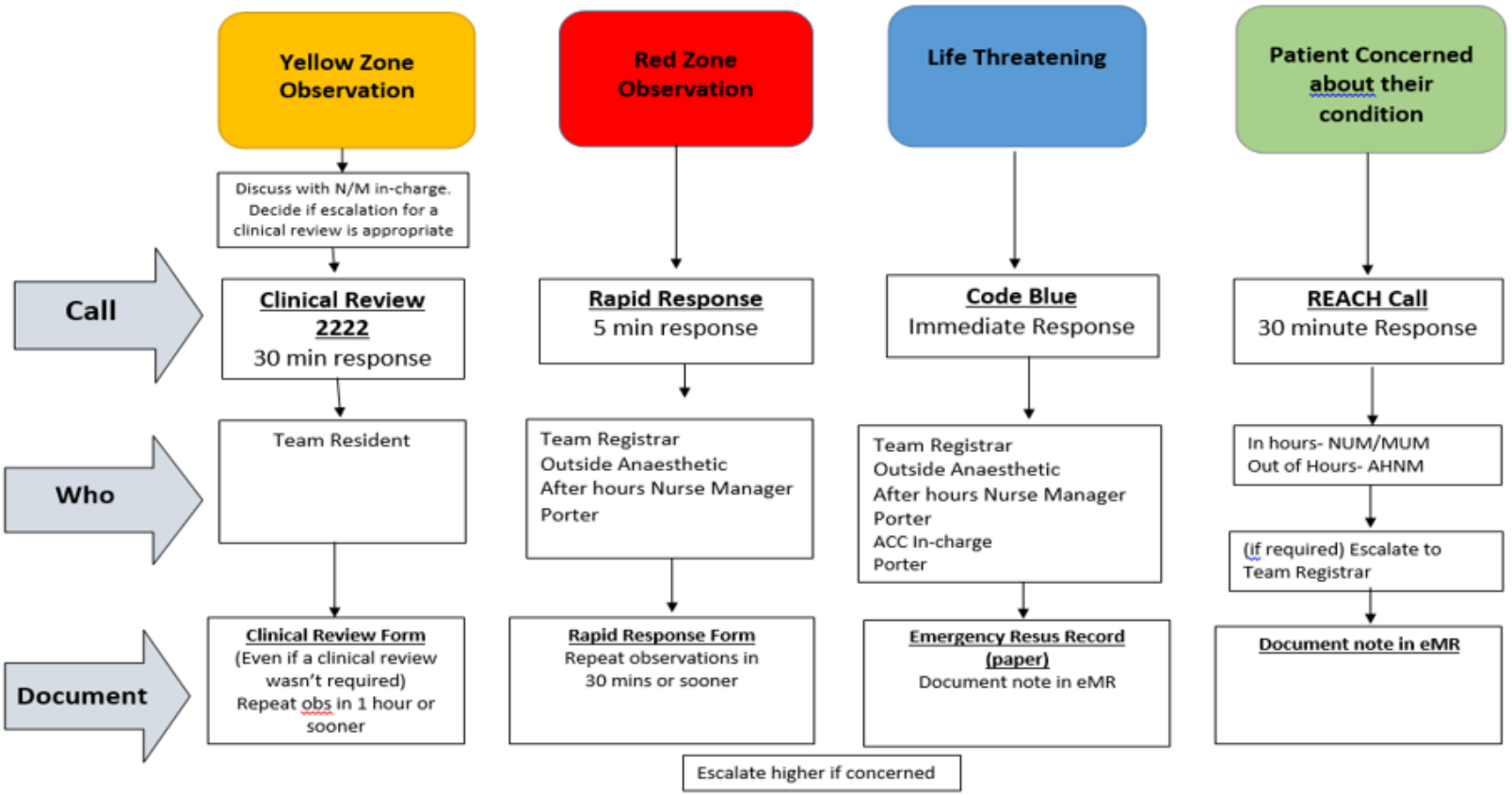
Date	Revision No.	Author and Approval
9.4.2021 May 2021	1	C Walter (A/NE), S Bolisetty (Medical Co- Director) Approved NCC LOPs Committee
12.9.24 31.10.2024	2	R Jackson (NE), S Bolisetty (Medical Co- Director) Endorsed by NCC CBR Committee

Appendix 1 Australia and New Zealand Committee on Resuscitation (ANZCOR) Guidelines



Appendix 2

CERS Escalation Pathway



Appendix 3 REACH Call