RECOGNITION AND MANAGEMENT OF NEONATE WHO IS CLINICALLY DETERIORATING OUTSIDE OF NEWBORN CARE CENTRE (NCC)

This LOP is developed to guide clinical practice at the Royal Hospital for Women. Individual patient circumstances may mean that practice diverges from this LOP.

1. AIM

- To facilitate the early recognition and management of the deteriorating neonate outside Newborn Care Centre (NCC). These areas include but are not limited:
  - Acute Care
  - Antenatal Ward
  - Birthing Services
  - Postnatal Ward

2. PATIENT

- Neonate

3. STAFF

- Medical, midwifery and nursing staff

4. EQUIPMENT

- Thermometer
- Stethoscope
- Resuscitaire equipped with Neopuff ®, Ambu SPUR II ®, saturation monitor, and suction

5. CLINICAL PRACTICE

- Perform a baseline assessment:
  - **At birth:**
  - Apgar assessment and identification of other perinatal risk factors
  - **Before leaving birthing environment**:
  - One full set of observations:
    - respiratory rate (RR)
    - oxygen saturations (O_2 sats)
    - heart rate (HR)
    - temperature, and
  - Any additional observations e.g. blood sugar, scalp examination (for subgaleal haemorrhage) as determined by neonatal and perinatal risk factors
  - **Within one hour of admission to postnatal ward:**
  - One full set of observations as outlined above using Standard Neonatal Observation Chart (SNOC) and neonatal risk assessment for any identifiable perinatal risk factors
  - **Within one hour prior to discharge or transfer:**
  - One full set of observations as outlined above

RECOGNITION AND MANAGEMENT OF NEONATE WHO IS CLINICALLY DETERIORATING OUTSIDE OF NEWBORN CARE CENTRE (NCC) cont'd

- Recommend frequency of observations as outlined in Royal Hospital for Women (RHW) Newborn Observations outside of Newborn Care Centre LOP
- Escalate care for neonate outside of NCC environment as follows:

  - WHITE ZONE
    - Continue observations as per standard frequency for neonate with observations within normal parameters unless clinical change is noted in the neonate

  - BLUE ZONE
    - Inform and review the neonate with the team leader and nurse/midwife if the neonate has any observations in the blue zone to determine whether:
      - there is any adverse trend in the observations
      - there are any alterations to calling criteria for the neonate, and
      - the abnormal observations reflect deterioration
    - Perform the following if YES to the above:
      - Initiate appropriate clinical care
      - Increase the frequency of observations
      - Reassess the neonate within one hour
      - Escalate care if there is any concern about the neonate's condition

  - YELLOW ZONE (reviewed within 30 minutes)
    - Inform and review the neonate promptly with the team leader and nurse/midwife if a neonate has one or more observations documented in the yellow zone or has additional yellow zone criteria including:
      - Blood gas results outside acceptable parameters
      - Poor peripheral perfusion
      - Irritability, poor handling or feeding, possible pain or excessive sleeping
      - Bilious green vomit or coffee ground vomit
      - Temperature instability OR
      - Concern by any staff or family, follow-up as per REACH program

    . Consider:
      - Are the observation changes already addressed within the altered calling criteria? (e.g. stable neonate with self-reverting supraventricular tachycardia medicated has a low heart rate)
      - Does the trend in observations suggest deterioration?
      - Is there more than one yellow zone observation or additional criteria?
    - Activate a clinical review if criteria met, by calling 2222 and state that you are requesting a **neonatal** clinical review (see appendix 1)
    - Initiate appropriate clinical care and document on electronic clinical review form
    - Repeat observations and reassess the neonate within 30 minutes
    - Continue 30 minutely observations until the neonate's clinical condition stabilises or as advised by neonatal team
    - Reassess the neonate and escalate to a Rapid Response if the neonate has not been reviewed by a medical officer or nurse practitioner (NP) from the NCC within 30 minutes

RECOGNITION AND MANAGEMENT OF NEONATE WHO IS CLINICALLY DETERIORATING OUTSIDE OF NEWBORN CARE CENTRE (NCC) cont'd

- **Activate a neonatal Rapid Response** if the neonate's observations enter the **RED zone** while you are awaiting a response from them the clinical review
- Inform the neonatal fellow/consultant on-call of the review by paediatric medical officer or NP who assessed and managed the neonate
- Document the assessment in the neonate's medical record by paediatric medical officer or NP

- RED ZONE (review within 5 minutes)
  - Initiate **a rapid response** by calling 2222 and stating **Neonatal Rapid Response Review**. Rapid Responses require attendance **within 5 minutes,** if a neonate has **any Red Zone** observation or additional Red Zone criteria present including (see appendix 1):
    - Clinical suspicion of sepsis
    - Apnoea – responds to stimulation
    - White extremity
    - Three or more simultaneous "yellow zone" observations
    - Generalised scalp swelling with laxity of the scalp crossing the suture line suggestive of subgaleal haemorrhage
    - Deterioration not reversed within one hour of a clinical review OR
    - Serious concern by any staff or family member
  - Initiate appropriate clinical care and document on the electronic rapid response form
  - Repeat and increase the frequency of observations as indicated by the neonate's condition
  - Document the assessment in the neonate's medical record by paediatric medical officer or NP
  - Commence basic life support (BLS) as per Neonatal Resuscitation guidelines (see appendix 2) and escalate to a Neonatal CODE BLUE if neonate **further deteriorates** and basic life support is required
  - Escalate to a neonatal CODE BLUE if **further assistance is required** during a Rapid Response
  - Inform the neonatal fellow/consultant on call as soon as practicable by the experienced paediatric medical officer who assessed and managed the neonate

- CODE BLUE
  - Activate a **CODE BLUE** urgently by calling 2222 and stating **NEONATAL CODE BLUE** with your exact location if a neonate has **any** of the following:
    - Respiratory arrest
    - Cardiac arrest or circulatory collapse
    - Prolonged and/or profound desaturation
    - Apnoea not responsive to stimulation
    - New or prolonged seizure or suspected seizure activity
    - Cyanosis – particularly around the mouth

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- Bleeding from mouth or nose, suggestive of pulmonary haemorrhage
- Haemorrhage from rectum/significant volume of frank blood
- is floppy and unresponsive or not rousable

- Commence basic life support (BLS) as per neonatal resuscitation guidelines (see appendix 2)
- Bring resuscitaire and neonatal red resuscitation trolley to the bedside
- Document on the Neonatal Resuscitation chart
- Request additional members of the neonatal team to assist with the resuscitation **if further assistance** is required after the neonatal code blue activated, by making an urgent call to the NCC
- Admit any neonate who has received chest compressions or extensive resuscitation to NCC for ongoing observation and post resuscitation care

Alteration to the calling criteria

- Alter standard calling criteria for yellow or red zone observations in consultation with the on-call fellow/consultant if required. This MUST be clearly documented by a medical officer or NP
- Document if the on-call fellow/consultant is unavailable to counter sign the order at the time of consultation. This should be noted in the neonate's medical record by the medical officer and attended to as soon as practical
- Document the rationale for altering the calling criteria in the neonate's medical record
- Review all alterations within 8 hours for acute and 24 hours for chronic or earlier if clinically indicated

6. DOCUMENTATION

- Medical record
- Neonatal resuscitation chart

7. EDUCATIONAL NOTES

- Resuscitaire infant warmers located in the birth unit are equipped to provide Basic life support and include a Neopuff® or T-piece, Ambu-SPUR II ®, oxygen saturation monitor, and resuscitation medications. Two red advanced life support trolleys are located in birth unit
- As per RHW CERS policy, medical responders for a:
  - clinical review will be NCC resident medical officer (RMO)
  - rapid response will be the NCC RMO and registrar skilled in advanced life support
  - code blue will be NCC consultant (in hours), fellow, registrar/RMO/NP, clinical nurse consultant (in hours) and senior neonatal nurse
    NB. The NCC consultant should be called by phone if required after hours
- When calling a code blue for a deteriorating neonate, it is essential to state it is a NEONATAL code blue or the Adult code blue team will be activated

RECOGNITION AND MANAGEMENT OF NEONATE WHO IS CLINICALLY DETERIORATING OUTSIDE OF NEWBORN CARE CENTRE (NCC) cont'd

8. RELATED POLICIES/PROCEDURES/CLINICAL PRACTICE LOP

- Management of the Deteriorating NEONATAL inpatient SESLHD/340
- Policy Directive- Recognition and management of patients who are deteriorating PD2020_018
- Neonatal Resuscitation at Delivery
- Admission of a neonate to Postnatal Services
- Neonatal Observations outside Newborn Care Centre

9. RISK RATING

- Medium

10. NATIONAL STANDARD

- Standard 1 Clinical Governance
- Standard 5 Comprehensive care
- Standard 6 Communicating for safety
- Standard 8 Recognising and Responding to Acute Deterioration

11. REFERENCES

1. Australian and New Zealand Committee on Resuscitation Guideline 13.2 – Planning for Neonatal Resuscitation and Identification of the Newborn at Risk. 2016
2. Australian and New Zealand Committee on Resuscitation Guideline 13.3 – Assessment of the Newborn Infant. 2016
3. Australian and New Zealand Committee on Resuscitation Guideline 13.4 – Airway Management and Mask Ventilation of the Newborn Infant. 2016
4. Wycoff, M., Wyllie, J., Aziz, K. et al. 2020. Neonatal Life Support: 2020 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. Circulation. 2020;142: S185-221. https://www.ahajournals.org/doi/10.1161/CIR.0000000000000895
5. Recognition and Management of Neonatal Patients who are Clinically Deteriorating – Westmead Hospital , Policy number WSYD-PCP202360

12. AUTHOR:

Primary	2020	Srinivas Bolisetty Charlotte Walter (ANE)
Revised	2021	Cheryl Johnson (CME) Annette Taylor (CME) Rochelle Phillips (CNC) NCC LOP Committee

REVISION & APPROVAL HISTORY
Endorsed Maternity Services LOPs group 24/8/21 (with Neonatal Services input)

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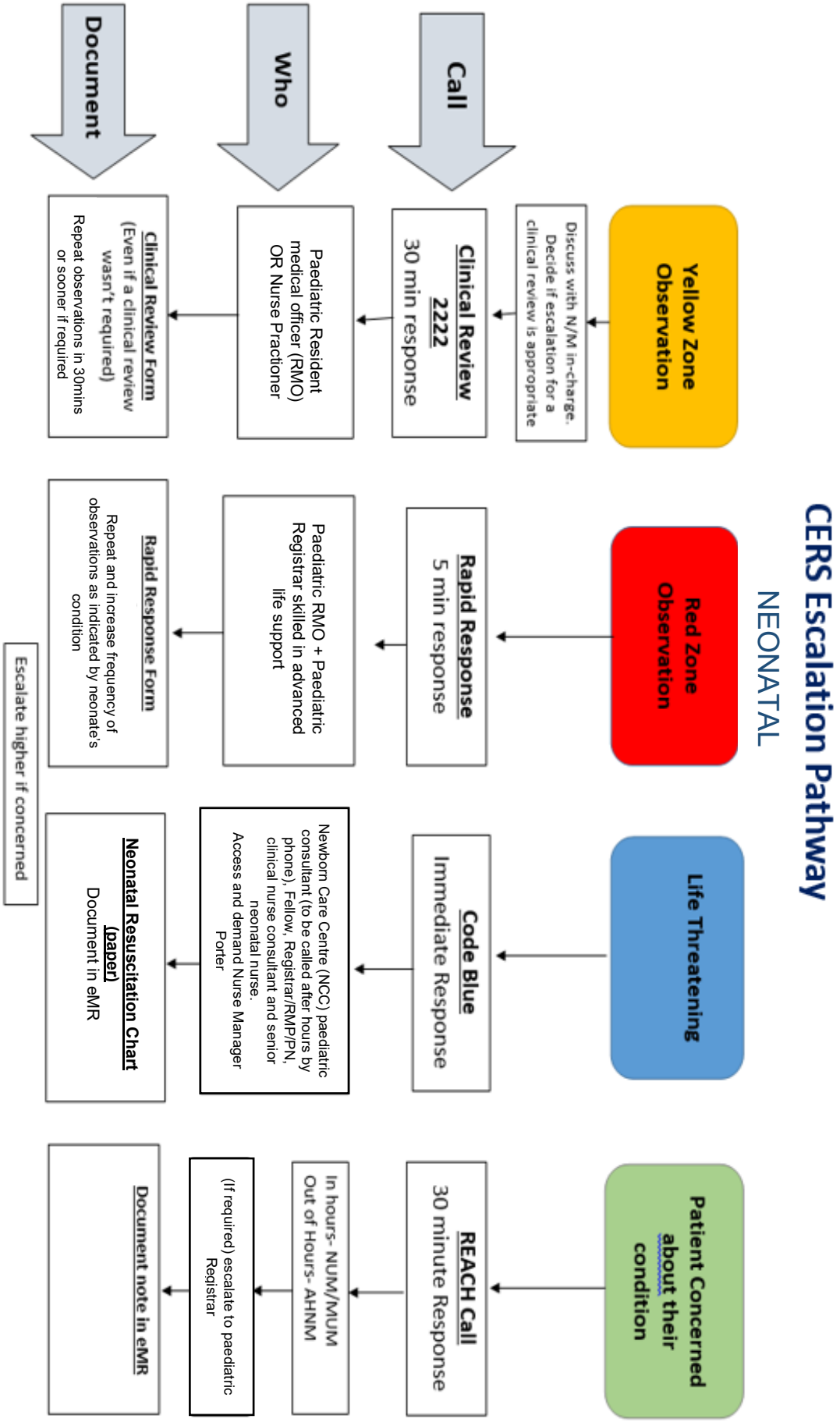
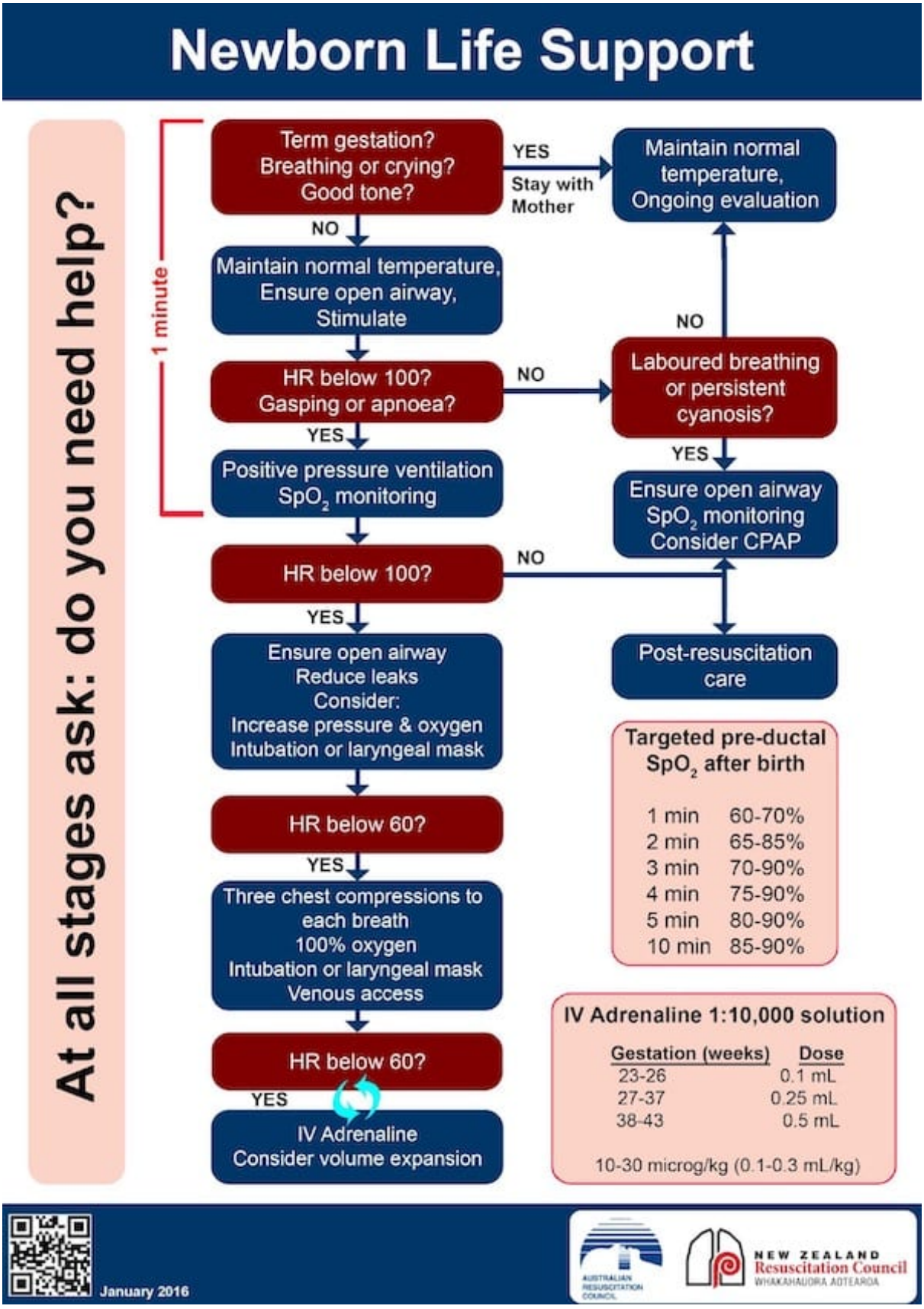
…./Appendices


CERS Escalation Pathway
NEONATAL
Yellow Zone Observation
Red Zone Observation
Life Threatening
Patient Concerned about their condition
Call
Who
Document
Discuss with N/M in-charge. Decide if escalation for a clinical review is appropriate
Clinical Review 2222 30 min response
Paediatric Resident medical officer (RMO) OR Nurse Practioner
Clinical Review Form (Even if a clinical review wasn't required) Repeat observations in 30mins or sooner if required
Rapid Response 5 min response
Paediatric RMO + Paediatric Registrar skilled in advanced life support
Rapid Response Form Repeat and increase frequency of observations as indicated by neonate's condition
Code Blue Immediate Response
Newborn Care Centre (NCC) paediatric consultant (to be called after hours by phone), Fellow, Registrar/RMP/PN, clinical nurse consultant and senior neonatal nurse. Access and demand Nurse Manager Porter
Neonatal Resuscitation Chart (paper) Document in eMR
REACH Call 30 minute Response
In hours- NUM/MUM Out of Hours- AHNM
(If required) escalate to paediatric Registrar
Document note in eMR
Escalate higher if concerned

Appendix 2


Newborn Life Support
At all stages ask: do you need help?
1 minute
Term gestation?
Breathing or crying?
Good tone?
YES
Stay with Mother
Maintain normal temperature, Ongoing evaluation
NO
Maintain normal temperature,
Ensure open airway,
Stimulate
HR below 100?
Gasping or apnoea?
NO
Laboured breathing or persistent cyanosis?
YES
Positive pressure ventilation
SpO2 monitoring
YES
Ensure open airway
SpO2 monitoring
Consider CPAP
HR below 100?
NO
YES
Post-resuscitation care
Ensure open airway
Reduce leaks
Consider:
Increase pressure & oxygen
Intubation or laryngeal mask
Targeted pre-ductal SpO2 after birth
1 min 60-70%
2 min 65-85%
3 min 70-90%
4 min 75-90%
5 min 80-90%
10 min 85-90%
HR below 60?
YES
Three chest compressions to each breath
100% oxygen
Intubation or laryngeal mask
Venous access
IV Adrenaline 1:10,000 solution
Gestation (weeks) Dose
23-26 0.1 mL
27-37 0.25 mL
38-43 0.5 mL
10-30 microg/kg (0.1-0.3 mL/kg)
HR below 60?
YES
IV Adrenaline
Consider volume expansion
January 2016
NEW ZEALAND Resuscitation Council
WHAKAHAUORA AOTEAROA