Guideline 13.10 – Ethical Issues in Resuscitation of the Newborn

Summary

Guidelines 13.1-13.10 and the Newborn Life Support algorithm are provided to assist in the resuscitation of newborn infants. Differences from the adult and paediatric guidelines reflect differences in the anatomy and physiology and the causes of cardiorespiratory arrest for newborns, older infants, children and adults. These guidelines draw from Neonatal Life Support 2020 and 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations (CoSTR) [1, 2] the development of which included representation from ANZCOR. The 2020 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Care [3] and local practices have also been taken into account.

To whom do these guidelines apply?

The term 'newborn' or 'newborn infant' refers to the infant in the first minutes to hours following birth. In contrast, the neonatal period is defined as the first 28 days of life. Infancy includes the neonatal period and extends through the first 12 months of life.

ANZCOR Guidelines 13.1 to 13.10 and the Newborn Life Support algorithm are mainly for the care of newborns. The exact age at which paediatric techniques and in particular, compression-ventilation ratios, should replace the techniques recommended for newborns is unknown, especially in the case of very small preterm infants. For term infants beyond the first minutes to hours following birth, and particularly in those with known or suspected cardiac aetiology of their arrest, paediatric techniques may be used (see Paediatric Advanced Life Support Guidelines 12.1 to 12.7).

Who is the audience for these guidelines?

ANZCOR Guidelines 13.1 to 13.10 and the Newborn Life Support algorithm are for health professionals and those who provide healthcare in environments where equipment and drugs are

available (such as a hospital). When parents are taught CPR for their infants who are being discharged from birth hospitals, the information in Basic Life Support Guidelines (ANZCOR Guidelines 2 to 8 is appropriate).

Recommendations

The Australian and New Zealand Committee on Resuscitation (ANZCOR) makes the following recommendations:

1. If there is doubt whether to initiate or withhold resuscitation, it is best to start and later withdraw treatment when the situation has been clarified. [Good Practice Statement] Exceptions may include newborns with anencephaly and extremely immature newborns for whom there is very little possibility of intact survival.
2. Together, clinicians and parents may decide to withhold or withdraw treatment on the basis of medical inappropriateness and in the 'best interests' of the infant. [5-7] Determining medical inappropriateness of initiating or continuing interventions includes weighing their potential effectiveness in the infant's clinical situation against the risk of harms (which may include pain, suffering, indignity and separation from parents). These reasons should be discussed with families and their views considered. [Good Practice Statements]
3. When gestation, birth weight, or congenital anomalies are associated with almost certain early death and high morbidity is likely among the rare survivors, it may be reasonable to withhold resuscitation. In conditions associated with a high rate of survival, resuscitation is indicated. Generally, parents' views on resuscitation should be supported, particularly in conditions associated with uncertain prognosis, when there is borderline survival and a relatively high rate of morbidity, and where the burden to the newborn is high. In rare instances, there may be a discordance between parental views and the best interests of the newborn, that require processes including legal and ethical consultation. [Good Practice Statements]
4. Prognostic scores have been developed to assist in decision-making about resuscitation for infants born <25 weeks' gestation. Prognostication should be supported by regional data whenever possible. Even small discrepancies in gestational age estimation may have major implications for survival and long-term morbidity, therefore decisions to withhold resuscitation based on gestation should include consideration of the certainty of the estimate. Other factors such as birthweight for gestation, plurality, receipt of antenatal steroids and circumstances of birth should also be considered, and decisions may need to be revised if circumstances change. [Good Practice Statements]
5. Whenever possible, there should be a consistent and coordinated approach from the obstetric, midwifery and neonatal teams in applying this guideline and in communicating with the parents to develop an agreed-upon management plan which is in the best interests of the newborn. [Good Practice Statement]
6. If, despite provision of all the recommended steps of resuscitation and excluding reversible causes, a newborn requires ongoing cardiopulmonary resuscitation (CPR) after birth, we suggest discussion of discontinuing resuscitative efforts with the clinical team and family. ANZCOR suggests that a reasonable time frame to consider this change in goals of care is

around 20 minutes after birth. [CoSTR 2020, weak recommendation, very low-certainty evidence]

7. In resource-limited settings, such as in areas remote from neonatal intensive care, telephone consultation with a neonatologist or paediatrician prior to discontinuing resuscitation is suggested, if possible. [Good Practice Statement]
8. Care should be provided in a way that is focused on the infant's best interest, comfort and dignity, and on support of the parents. This is particularly important when there is a decision to withdraw or withhold resuscitation. [Good Practice Statement]

Abbreviations

Abbreviation	Meaning/Phrase
ANZCOR	Australian and New Zealand Committee on Resuscitation
CoSTR	International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations
CPR	Cardiopulmonary resuscitation

1.0 | Initiating Resuscitation

The birth of extremely premature newborn infants and those with severe congenital anomalies raises questions with the parents and among clinicians about initiation of resuscitation. [4, 5] Resuscitation does not mandate continued support. Not starting resuscitation or starting intensive care, which is stopped later, when the details of the newborns condition are known, are ethically and legally equivalent. [6-8] The latter approach allows time to gather more complete clinical information and for discussions with the family. If there is doubt whether to initiate or withhold resuscitation, it is best to start and later withdraw treatment when the situation has been clarified. [Good Practice Statement] Exceptions may include newborns with anencephaly and extremely immature newborns for whom there is very little possibility of intact survival. Together, clinicians and parents may decide to withhold or withdraw treatment on the basis of medical inappropriateness and in the 'best interests' of the infant. [5-7] Determining medical inappropriateness of initiating or continuing interventions includes weighing their potential effectiveness in the infant's clinical situation against the risk of harms (which may include pain, suffering, indignity and separation from parents). [9] These reasons should be discussed with families and their views considered. [Good Practice Statements]

When gestation, birth weight, or congenital anomalies are associated with almost certain early death and high morbidity is likely among the rare survivors, it may be reasonable to withhold resuscitation. In conditions associated with a high rate of survival, resuscitation is indicated. Generally, parents' views on resuscitation should be supported, particularly in conditions associated with uncertain prognosis, when there is borderline survival and a relatively high rate of morbidity, and where the burden to the newborn is high. [6-8, 10] In rare instances, there may be a

discordance between parental views and the best interests of the newborn, that require processes including legal and ethical consultation. [11] [Good Practice Statements]

Prognostic scores have been developed to assist in decision-making about resuscitation for infants born < 25 weeks' gestation. Prognostication should be supported by regional data whenever possible. Even small discrepancies in gestational age estimation may have major implications for survival and long-term morbidity, therefore decisions to withhold resuscitation based on gestation should include consideration of the certainty of the estimate. [12] Other factors such as birthweight for gestation, plurality, receipt of antenatal steroids and circumstances of birth should also be considered, and decisions may need to be revised if circumstances change. [Good Practice Statements]

Whenever possible, there should be a consistent and coordinated approach from the obstetric, midwifery and neonatal teams in applying this guideline and in communicating with the parents to develop an agreed-upon management plan which is in the best interests of the newborn. [Good Practice Statement]

2.0 | Discontinuing Resuscitation

It can be difficult for clinicians to decide how long resuscitative efforts should continue in a newborn with no heart rate or a very low heart rate with absent respirations after sustained resuscitative efforts. This critical decision involves knowing when to change the goals of care from resuscitation to the provision of comfort and contact with the parents. If such a decision is made too early, some newborns with potential to survive with good neurodevelopmental outcome may die. If the decision is made too late, there is likely to be a diminishing opportunity for parental engagement during end-of-life care.

A systematic review conducted for ILCOR [1] identified 15 studies that included 470 newborns, which reported survival rates to last follow-up ranging from 1.7% to 100% among newborns who had had at least 10 minutes of asystole, bradycardia (HR <60/min) or pulseless electrical activity after birth for which CPR was indicated. However, there was considerable heterogeneity across these studies (very low certainty evidence, downgraded for risk of bias and inconsistency). For neurodevelopmental outcomes among survivors, there was very low certainty evidence (downgraded for risk of bias and inconsistency) from 13 studies including 277 newborns. Thirty newborns among 80 survivors did not have moderate or severe neurodevelopmental disability.

For survival without neurodevelopmental impairment, the review found very low-certainty evidence (downgraded for risk of bias and inconsistency) from 13 studies of 277 newborns reporting neurodevelopmental outcomes. Among all 277 newborns reported in these studies, 69% died before last follow up, 18% survived with moderate to severe impairment, and 11% survived without moderate to severe impairment (2% lost to follow up). There was important heterogeneity between studies (and in some cases, within studies) about the timing and tools used to assess neurodevelopmental outcomes that precluded calculation of confidence intervals. [1]

This review concluded that due to small sample sizes and heterogeneity of study characteristics, there is inadequate evidence on which to base recommendations for specific groups of newborns (e.g., term vs preterm gestation, and whether or not therapeutic hypothermia was used). [1]

Failure to achieve return of spontaneous circulation in newborns despite 10 to 20 minutes of intensive resuscitation is associated with a high risk of mortality and a high risk of moderate-to-severe neurodevelopmental impairment among survivors. However, there is no evidence that any specific duration of resuscitation consistently predicts mortality or moderate-to-severe neurodevelopmental impairment. If, despite provision of all the recommended steps of resuscitation and excluding reversible causes, a newborn requires ongoing cardiopulmonary resuscitation (CPR) after birth, we suggest discussion of discontinuing resuscitative efforts with the clinical team and family. ANZCOR suggests that a reasonable time frame to consider this change in goals of care is around 20 minutes after birth.[1] [CoSTR 2020, weak recommendation, very low-certainty evidence]

In resource-limited settings, such as in areas remote from neonatal intensive care, telephone consultation with a neonatologist or paediatrician prior to discontinuing resuscitation is suggested, if possible. [Good Practice Statement]

Care should be provided in a way that is focused on the infant's best interest, comfort and dignity, and on support of the parents. This is particularly important when there is a decision to withdraw or withhold resuscitation. [Good Practice Statement]

References

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About this Guideline

Search date/s	ILCOR literature search details and dates are available on the CoSTR page of the ILCOR website (https://costr.ilcor.org) and the relevant CoSTR documents. [1, 2]
Questions/PICOs:	Are described in the CoSTR documents (https://costr.ilcor.org)
Method:	Mixed methods including ARC NHMRC methodology before 2017 and ILCOR GRADE methodology described in ILCOR publications since 2017.
Principal reviewers:	Helen Liley, Lindsay Mildenhall, Marta Thio, Callum Gately.
Main changes	Updating of references and clinical content consistent with contemporary ethical practice. Updating of evidence and recommendations in regard to discontinuing resuscitation. Updating of review evidence, references, and terminology to increase consistency with GRADE terminology.
Approved:	April 2021

Referencing this guideline

When citing the ANZCOR Guidelines we recommend:

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