

Topic Expert Group: Birth and transfer

Cord management at the delivery of preterm infants

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Target group

Preterm infants, parents and families

User group

Parents and family, healthcare professionals, perinatal units, hospitals and health services

Statement of standard

Preterm infants receive optimal umbilical cord management for smooth transition at birth by waiting before clamping and cutting the cord for at least one minute.

Rationale

During pregnancy the fetal blood circulates between the fetus and the placenta with about 50% of the blood volume residing in the placenta. The placenta provides nutrients and oxygen to the fetus. After birth the infant needs to adapt to extrauterine life, which requires a lot of changes in their circulation. Around 8-10% of all infants are born prematurely. For preterm infants these changes can be challenging, especially if they do not have sufficient blood volume to go around their body. Preterm infants are at increased risk of death, and prematurity is the leading cause of infant death below one year of age. (1) Morbidities related to their prematurity include the need for blood pressure support through inotropes, several blood transfusions or intraventricular haemorrhage (IVH) resulting into long-term neurodevelopmental problems. Extensive studies comparing different timing of when to clamp and cut the cord have shown that by waiting for at least 60 seconds a significant amount of the baby's own blood can be transferred and helps them to adapt their circulation in the first 72 hours after birth. (2–4) As a result, the risk of death is reduced by 28%. In addition, preterm infants have higher blood pressure, need less inotropes and fewer blood transfusions. Reduction of infant mortality is one of the WHO millennium goals. Therefore, the WHO has recommended to wait at least one minute before clamping and cutting the cord at birth of preterm infants. (1) In case this is not feasible a gentle stripping of the cord towards the baby ("milking") can be considered as an alternative way of providing the placental transfusion. (1,4) One study reported a possible increased risk of IVH in very preterm infants born before 28 weeks gestation who received milking of the umbilical cord, but this association was not confirmed in a recent meta-analysis. (5) Local clinical teams should consider risks and benefits for their own patient population when determining their own approach to methods of optimal umbilical cord management.

Benefits

Short-term benefits

- Reduced mortality and morbidity (6)
- Reduced risk of brain injury and infections (6)
- Lower incidence of IVH and necrotising enterocolitis (6)
- Improved transition of circulation with better blood pressure (6)

- Reduced exposure to potentially painful and/or unnecessary interventions (blood transfusion, heel pick) (7)
- Minimised separation of mother and infant (8)

Long-term benefits

- Improved neuro-cognitive outcomes such as fine motor skills (9–11)
- Improved bonding between parents and babies (12–15)

Components of the standard

Component	Grading of evidence	Indicator of meeting the standard
For parents and family		
1. Parents are informed by healthcare professionals about the role of cord management at birth and timing of cord clamping both in vaginal and caesarean birth, as well as short- and long-term effects.	B (High quality)	Patient information sheet
2. Parents are informed by healthcare professional about the role of cord clamping at preterm delivery and/or in cord blood banking.	B (High quality)	Clinical record
3. Cord clamping preferences of parents should be reported in the birth plan.	B (Moderate quality)	Clinical record
For healthcare professionals		
4. Sessions to motivate the teams and update the evidence regarding cord clamping is promoted by a multidisciplinary team including leaders (midwives, obstetricians, paediatricians, neonatologists, nurses and anaesthetists).	B (High quality)	Training documentation, healthcare professional feedback
5. Training on optimising neonatal transition and cord clamping technique, including milking, neonatal stabilisation/resuscitation with intact cord, sample for umbilical artery pH strategies with intact cord is adhered to by all professionals. (16)	A (Moderate quality)	Training documentation, healthcare professional feedback
6. The definitions/terminology regarding cord management are shared.	B (Moderate quality)	Guidelines
For perinatal unit		
7. A guideline to ensure a standardised approach to third stage management, including cord traction and timing of cord clamping, is available both for	A (High quality)	Guideline

low- and high-risk pregnancies/deliveries and both for vaginal and caesarean birth. (1,9,17)

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| 8. Mode and timing of cord management are reported in medical record. (1,16) | A (High quality) | Clinical records |
| 9. A protocol for cord clamping approach in special situations (e.g. asphyxia, sentinel events, twins, infection, immunisation) is available. (16) | A (High quality) | Guideline |
| 10. The best strategy of cord management for every neonate both in low- and high-risk pregnancies/deliveries is planned/ensured (individualised) by a multidisciplinary team (midwives, obstetricians, paediatricians, neonatologists, nurses and anaesthetist according to the case). (9,16,17) | A (High quality) | Audit report, minutes of team meetings |

For hospital

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| 11. Training of relevant staff about optimal cord management is ensured. | B (High quality) | Training documentation |
| 12. Equipment for optimal cord management such as monitors, heated mattresses, plastic bags and bedside resuscitation trolleys are provided. | B (High quality) | Audit report |

For health service

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| 13. A national guideline on optimal cord management is available and regularly updated. | B (High quality) | Guideline |
| 14. Local implementation tools are available to use for clinical and ambulance services (such as teaching slides, leaflets, checklist for use at delivery). | B (High quality) | Audit report |
| 15. Place of birth is ensured to be adequate for the provision of required level of neonatal care. | B (High quality) | Audit report |

Where to go – further development of care

Further development	Grading of evidence
For parents and family	
<ul style="list-style-type: none">Parents are routinely educated by healthcare professionals about umbilical cord management.	B (High quality)
For maternity unit	
<ul style="list-style-type: none">Initiate documentation on timing of cord clamping at every delivery.	B (High quality)
<ul style="list-style-type: none">Initiate projects on quality indicators to monitor and investigate outcomes of infants and mothers in relation to umbilical cord management. (16)	A (High quality)
<ul style="list-style-type: none">Train and audit cord blood sampling practice on an unclamped cord.	B (High quality)
For perinatal unit	
<ul style="list-style-type: none">Audit the need of resuscitation and occurrence of respiratory distress syndrome in correlation to timing of umbilical cord clamping and cutting.	C (High quality)
For hospital	
<ul style="list-style-type: none">Facilitate information, education and training to the complete perinatal team (midwives, nurses, obstetricians, neonatologists etc.) on umbilical cord management under different circumstances, such as caesarean delivery, infection and compromised babies.	C (High quality)
For health service	
<ul style="list-style-type: none">Prioritise studies on optimal cord management and the initiation of advanced resuscitation with the intact cord.	B (Moderate quality)

Getting started

Initial steps

For parents and family

- Parents are verbally informed about the benefits of optimal cord management at birth of their preterm infants.

For healthcare professionals

- Attend training about benefits of optimal cord management in the care of preterm infants.
- Provide positive feedback to colleagues.

For perinatal unit

- Develop multidisciplinary guideline for optimal cord management at preterm deliveries.

For hospital

- Support hospital staff in training for providing optimal cord management.

For health service

- Develop a national guideline on optimal cord management in preterm deliveries with input by professional bodies.

Description

Studies on cord management had a wide variety of designs and the methods include waiting before clamping and cutting the cord for a predefined period, milking of the cut or intact cord for 2-4 times or a combination thereof. Recently, studies of resuscitating the preterm with the intact cord have also been started. (17) For the purpose of widely introducing optimal cord management, this standard has focussed mainly on the implementation of waiting before clamping and cutting the cord for at least one minute. A plan, do, study, act approach for successful implementation has been described in the literature. (16)

Source

1. Guideline: Delayed Umbilical Cord Clamping for Improved Maternal and Infant Health and Nutrition Outcomes [Internet]. Geneva: World Health Organization; 2014 [zitiert 9. Juni 2022]. (WHO Guidelines Approved by the Guidelines Review Committee). Verfügbar unter: <http://www.ncbi.nlm.nih.gov/books/NBK310511/>
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Lifecycle

3 years/next revision: 2025

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