Document Control

### Title

**Umbilical Cord Care Guidelines v2.0**

<table>
<thead>
<tr>
<th>Version</th>
<th>Date Issued</th>
<th>Status</th>
<th>Comment / Changes / Approval</th>
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<tr>
<td>1.0</td>
<td>2005</td>
<td>Final</td>
<td>Published on Tarkanet.</td>
</tr>
<tr>
<td>1.1</td>
<td>July 2010</td>
<td>Revision</td>
<td>Guidelines put into current Trust format revised with current evidence and renamed. Approved by SW neonatal Benchmarking Group July 2010.</td>
</tr>
<tr>
<td>1.2</td>
<td>May 2011</td>
<td>Revision</td>
<td>Minor amendments by Corporate Governance to update to latest template and version control.</td>
</tr>
<tr>
<td>1.3</td>
<td>May 2012</td>
<td>Revision</td>
<td>Minor amendments made according to current evidence. Minor amendments by Corporate Governance to document control report and hyperlinks.</td>
</tr>
<tr>
<td>1.4</td>
<td>March 2018</td>
<td>Revision</td>
<td>Updated and sent out for comments</td>
</tr>
<tr>
<td>2.0</td>
<td>June 2018</td>
<td>Final</td>
<td>Approved by Paediatric Specialty Team 29/6/18</td>
</tr>
</tbody>
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### Superseded Documents

Umbilical cord care guideline V1.3

<table>
<thead>
<tr>
<th>Issue Date</th>
<th>Review Date</th>
<th>Review Cycle</th>
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<tr>
<td>June 2018</td>
<td>June 2021</td>
<td>Three years</td>
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### Consulted with the following stakeholders: (list all)

- Clinical staff SCU
- Neonatal Lead consultant
- Maternity Services

### Approval and Review Process

- Paediatric Specialty Team

### Local Archive Reference

G:\Paediatric Resource\neonates\guidelines\previous versions of guidelines

### Local Path

Paediatric Resource\neonates\guidelines folder

### Filename

Umbilical Cord Care Guidelines V2.0

### Policy categories for Trust’s internal

### Tags for Trust’s internal website (Bob)
| website (Bob) | Omphalitis, infection, neonatal, baby, newborn, infant. |
| Neonatal, maternity | |
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1. **Introduction and Background**

1.1. The normal umbilical cord consists of two arteries and one vein. During pregnancy the foetus gains nutrients and removes waste products via the cord. Following delivery the cord quickly begins to dry out, harden and turn black, (dry gangrene), but the umbilical vessels remain patent for several days thus the risk of infection is high.

1.2. The umbilical cord of the newborn is a potential portal of entry for invasive bacterial pathogens, (Dinulos and Pace, 2008). Soon after delivery the cord becomes colonized by non-pathogenic bacteria, (Trotter 2003), but pathogenic organisms can also be present on the skin and can track up the umbilical stump causing septicaemia, or result in other focal infections as a result of blood borne spread. Colonisation of the area begins within hours of birth as a result of non-pathogenic organisms passing from mother to baby via skin-to-skin contact. Harmful bacteria can be spread by bad hygiene, poor hand-washing techniques and especially by cross-infection by healthcare workers. (RCM 2008).

Approximately three fourths of omphalitis cases are polymicrobial in origin. Aerobic bacteria are present in approximately 85% of infections, predominated by *Staphylococcus aureus*, group A *Streptococcus*, *Escherichia coli*, *Klebsiella pneumoniae*, and *Proteus mirabilis*.

1.3. Omphalitis continues to cause many deaths in low income countries, (WHO 1999). Mean age of onset is 5-9 days in term infants and 3-5 days in preterms, (Gallagher and Shah 2004)

1.4. Cord separation should be complete within 5-15 days, (Zupan et al 2004). There will still be some mucoid material so there is a continued risk of infection until complete healing occurs a few days later, (Trotter 2008).

1.5. Throughout history many different substances have been used in an attempt to prevent umbilical infection. Currently there is no research to demonstrate advantage of use of antiseptics and antibiotics over simply keeping the cord clean, (NICE, 2006; WHO 2011, Zupan et al 2004). Keeping the cord clean and dry hastens cord separation, (Evens et al 2004).

2. **Definition**

Omphalitis is an infection of the umbilical stump. It typically presents as a superficial cellulitis that can spread to involve the entire abdominal wall and may progress to necrotizing fasciitis, myonecrosis, or systemic disease. Omphalitis is uncommon in industrialized countries; however, it remains a common cause of neonatal mortality in less developed areas. It is predominantly a disease of the neonate, (Medscape 2015).
3. **Purpose**

The purpose of this document is to set out Northern Devon Healthcare NHS Trust’s best practice guidelines for umbilical cord care.

The following general principles can be applied in order to:

- Maintain a clean and healthy umbilicus.
- Prevent and detect early signs of omphalitis.

4. **Responsibilities**

4.1. It is the responsibilities of all the MDT who care for newborn infants to follow these guidelines.

4.2. It is the responsibility of all the MDT who care for newborn infants to take every opportunity to observe umbilical cord for signs of infection or concern and report it appropriately.

4.3. In addition it is the responsibility of the MDT to give information and education to the parent/careers on care of their baby’s umbilical cord and how to identify infection.

5. **Associated risk factors**

- Low birth weight less than 2500g
- Premature infants
- Premature rupture of membranes
- Septic delivery
- Poor umbilical catheterisation

6. **Guidelines for practice**

6.1. At delivery (see care of the newborn immediately after birth guideline)

- Wear protective clothing e.g. gloves and plastic apron (CDC, 2006).
- Delaying cord clamping for at least one minute is recommended for all newborn infants not requiring resuscitation (NLS 2015, WHO 2011).
- Early cord clamping (<1 minute after birth) is not recommended unless the neonate is asphyxiated and needs to be moved immediately for resuscitation (WHO 2011).
• Stripping (or ‘milking’) of the umbilical cord has been suggested as an alternative to delayed cord clamping when the infant is in need of resuscitation; however there is insufficient evidence to recommend this as a routine measure (NLS 2015).

• For healthy term infants delaying cord clamping for at least one minute or until the cord stops pulsating following delivery improves iron status through early infancy. For preterm infants in good condition at delivery, delaying cord clamping for up to 3 min results in increased blood pressure during stabilisation, a lower incidence of intraventricular haemorrhage and fewer blood transfusions. However, infants are more likely to receive phototherapy. There are limited data on the hazards or benefits of delayed cord clamping in the non-vigorous infant.

• The cord should be cut (with a sterile instrument) no closer than 3 cms from the cord stump to avoid excessive bleeding, (Billington et al 1963 cited by Trotter 2003). If the baby may require umbilical catheterisation the cord should be cut at a longer length, approximately 6-8cms.

6.2. Open Cord Care

• The umbilical cord should be left to separate naturally.
• Hand hygiene as per Trust policy before and after all baby cares. This includes wearing gloves before touching or caring for the umbilical cord stump.
• Minimal handling of cord and surrounding area to cut down the risk of cross infection.
• Keep the cord clean and dry, and leave alone unless contaminated with urine or faeces. This is as effective as use of antiseptics/antibiotics, which prolongs cord separation time, (AAP and ACOG 2012; Pezzati et al 2003, Zupan et al 2004, and Trotter 2003).
• Clean and pat dry if necessary with plain water and gauze, do not use cotton wool, (AWHONN, 2013; Trotter 2003). There is no need to use antiseptic lotions or powders.
• Leave cord open to air (AWHONN, 2013).
• Clothes should be clean and loose fitting to allow air to circulate.
• Fold nappy down below cord to aid separation and prevent contamination from stool/urine (AWHONN, 2013: WHO, 2006).
• Only remove the cord clamp, (using a cord clamp remover), if the umbilical cord is dry. However it is not necessary to remove the clamp at all. It may hasten time to cord separation, (due to weight), (Trotter 2003).
• It is not necessary to bathe the baby every day. A ‘top and tail’ wash will allow the cord to stay dry.
• At each nappy change examine the cord and umbilicus for signs of infection.
• Teach parents to care for the cord and observe for signs of infection. Encourage their participation, ownership and involvement in care.
7. Signs and actions for suspected omphalitis

<table>
<thead>
<tr>
<th>Signs of localized infection</th>
<th>General signs of infection of cord in baby</th>
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<tr>
<td>• Redness / Erythema / Tenderness</td>
<td>• General malaise, (irritability, lethargy, poor feeding)</td>
</tr>
<tr>
<td>• Oedema</td>
<td>• Unstable temperature, respiratory and cardiovascular disturbances</td>
</tr>
<tr>
<td>• Bleeding / discharge (thin, sanguinous or purulent).</td>
<td>• Cutaneous abnormalities including jaundice or petechiae</td>
</tr>
<tr>
<td>• Offensive odour</td>
<td>• Rigid/distended abdomen</td>
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(Gallagher and Shah 2004)

Note: The prevalence of a moist and/or sticky cord base, which may or may not be smelly, is not necessarily a positive sign of infection. If the baby is alert, feeding well and afebrile, then the chances of infection remains low. Observation is the only treatment required in this instance.

• If any of these signs of infection occur then;
  • Inform medical staff who may perform an infection screen and prescribe antibiotics.
  • Take a swab for microscopy, culture and sensitivity (MC& S).
  • Inform and discuss condition with parents, altering care in accordance with baby's condition.
  • Document on care records

• Practices that contribute to preventing infection in the umbilical cord.
  • Encourage rooming in/skin to skin contact with the mother to promote colonization with non-pathogenic bacteria from the mother’s skin flora, (Enkin et al 2000, WHO 1999).
  • Support early and frequent breast-feeding to provide newborn with antibodies to help fight infections, (RCP 2001).
  • It remains important for women of childbearing age to be protected against tetanus, so that passive immunity can be conferred to their baby in the weeks prior to infant immunisation.

8. Monitoring Compliance with and the Effectiveness of the Guideline

8.1. Standards/ Key Performance Indicators

Key Performance indicators on which to base care in the Special Care Unit are:

• BLISS Baby Charter Standards
- Nice Neonatal Quality Standards
- NHS Toolkit for High Quality Neonatal Services
- National Neonatal Audit Programme
- NHS Standard Contract for Neonatal Critical Care

8.2. Process for Implementation and Monitoring Compliance and Effectiveness

- Implementation of this guideline not required, as this practice is already in place on SCU.
- Staff are informed of revised documentation. There is an expectation that staff are responsible to keep updated on any improvements to practice and deliver care accordingly.
- Non-adherence to the guideline is reported by use of the Datix system. Incidents are monitored and reviewed by the neonatal governance team and action plans made if required. Individual cases are discussed at handover, on ward rounds and weekly on grand rounds and are used for learning in safeguarding supervision.
- Further discussion and reviews occur at Directorate meetings, Neonatal/Paediatric Governance meetings Maternity Patient Safety Meetings and locally at Ward meetings. Learning and action plans are cascaded and improvements implemented. Key findings and learning points will be disseminated to relevant staff.

9. References

Grading recommendations to advise levels of evidence used are taken from National Institute for Clinical Excellence (2001).


10. Associated Documentation

• Bathing a baby guidelines
• Care of the newborn immediately after birth guideline
• Use of Incubator Humidity in Neonates - guidelines
• Skin care guidelines for Neonates
• Infant ‘Top and tail’ wash guidelines
• Fetal and Cord Blood Sampling guideline
• Sepsis Management for Neonates guideline
• Umbilical Cord Prolapse guideline