Frimley Health
NHS Foundation Trust

Cord Prolapse

Key Points

- Risks factors include malpresentation, prematurity and obstetric interventions e.g., artificial rupture of membranes with a high presenting part.
- Cord prolapse should be suspected when there is an abnormal fetal heart rate pattern, particularly shortly after spontaneous or artificial rupture of membranes.
- **This is an obstetric emergency which requires urgent delivery.**
- If cord prolapse is diagnosed, relieve the pressure of the presenting part on the cord by using a knee-to-chest position, manual displacement or if time allows, (i.e., in the hospital setting) filling the bladder with normal saline via a Foley catheter until delivery.
- Delivery by emergency Caesarean section (Category 1 or 2 as appropriate) is usually indicated - unless the cervix is fully dilated and head below ischial spines - when an instrumental delivery may be considered.

Version: 3.0
Date Issued: 29 November 2023
Review Date: September 2026
Key words: Cord prolapse, artificial rupture of membranes, presenting part

Abbreviations

ARM	Artificial Rupture of Membranes
BAPM	British Association of Perinatal Medicine
CTG	Cardiotocography
MBRRACE	Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK

Contents

1. INTRODUCTION AND DEFINITIONS

- **Cord prolapse**: Cord below the cervical os, with or without intact membranes. Extent can be further graded to inside or outside the vagina[1].
- **Cord presentation**: Cord above the cervical os, but below the presenting part, with or without intact membranes[1].
- **Compound cord presentation**: Cord above the cervix, lateral to the presenting part, with or without ruptured membranes[1].
- Cord prolapse occurs in 1-6 in 1000 births, commoner in breech presentation (more than 1 in 100 births) [2].
- Most recent MBRRACE data reported that cord prolapse accounted for 4.7% of stillbirths (N=108), a rate of 0.16 per 1000 live births (data from 2020, reported October 2022) [3].
- Cord prolapse occurring outside hospital is associated with significantly higher mortality[4].

2. RISK FACTORS

• Low birthweight (< 2.5kg) • **Multiparity** • **Prematurity less than 37 weeks** • Fetal congenital abnormality • **Malpresentation (breech, oblique, transverse and unstable lie)** • **Multiple gestation: Second twin** • **Polyhydramnios** • Unengaged presenting part • Low-lying placenta or other abnormal Placentation	Artificial rupture of membranes (with high/mobile presenting part). • Manipulation of foetus with ruptured membranes • External cephalic version • Internal podalic version • Stabilising induction of labour • Large balloon catheter induction of labour (if filled >180mls)

Most significant risk factors are indicated in bold.[4]

3. PREVENTION / REDUCING RISK

- Although we do not routinely admit women with transverse, oblique or unstable lie, they should be counselled regarding the risk of cord prolapse and be advised to present urgently if there are signs of labour or rupture of membranes[4].
- Current national guidance advises that elective admission to hospital after 37 weeks of gestation be discussed with women[2]. This is the role of the responsible clinician.
- Avoid artificial rupture of membranes (ARM) whenever possible if the presenting part is mobile.
- If it becomes necessary to rupture the membranes, this should be performed with arrangements in place for immediate caesarean delivery.
- Vaginal examination and obstetric intervention in the context of ruptured membranes and a high presenting part carries the risk of upward displacement and cord prolapse. Upward pressure on the presenting part should be kept to a minimum in such women.
- Rupture of membranes should be avoided if, on vaginal examination, there is cord felt below the presenting part.
- When cord presentation is diagnosed in established labour, caesarean section is usually indicated. Vaginal delivery may be possible if the CTG remains normal, labour is progressing well, and birth is imminent. The woman should be prepared for an emergency caesarean section or instrumental delivery.

4. DIAGNOSIS

- Cord presentation and prolapse may occur without outward physical signs and with a normal fetal heart rate pattern.
- Cord prolapse or presentation should be excluded at every vaginal examination in labour. The fetal heart rate should be auscultated after every vaginal examination and rupture of membranes.
- Cord prolapse should be suspected where there is an abnormal fetal heart rate pattern, particularly if the fetal heart rate becomes abnormal soon after membrane rupture, spontaneously or with amniotomy.
- The cord may be felt on vaginal examination or seen at the introitus.

This is an obstetric emergency.

5. MANAGEMENT

5.1 Initial Management

1. Call for help – Pull emergency buzzer and dial **2222** for 'obstetric emergency'.
2. Inform the woman what has happened and the need for immediate delivery.
3. Move into a knee to chest position. If the woman can mobilise, this is more effective in an upright or face down position. However, if the woman has limited mobility, move to left lateral, with knees to chest. Raise the left hip, using a pillow.
4. Replace the cord in the vagina gently if visible externally without handling the cord excessively.

5.2 First Stage of Labour

Relieve the pressure of the presenting part on the cord:

5. Insert a hand into the vagina and gently push up the presenting part. Place a hand suprapubically to keep the presenting part out of the pelvis. Use this opportunity to assess dilation.
6. If the patient is already catheterised, fill the bladder with 500mls sodium chloride (NaCl) 0.9% via a giving set to elevate the presenting part. Clamp the catheter using a spigot or Spencer Wells forceps.[5-7] The equipment is available in the cord prolapse emergency box on labour ward, the antenatal ward and antenatal clinic. If the patient is not already catheterised, take care to empty the bladder prior to filling, to prevent overdistension. Catheterisation should not delay transfer to theatre.
7. Confirm fetal viability by auscultation of the fetal heart or ultrasound scan as appropriate. If a fetal heart rate cannot be heard, an ultrasound scan should be performed immediately.
8. Switch off oxytocin (Syntocinon®) if running and consider tocolysis with subcutaneous (s.c) 250 micrograms terbutaline.[2]
9. Offer 4g intravenous bolus of magnesium sulphate (give over 15 minutes) for neuroprotection of the baby for women between 24 and 32+0 weeks gestation.[8] Consider giving magnesium sulphate (as above) between 22+3 – 33+6 weeks gestation.[8]
10. Transfer to theatre for:
    - Category I Caesarean section if the CTG shows abnormal features.
    - Category II Caesarean section if the CTG is normal (consider regional anaesthesia by experienced anaesthetist if CTG normal).
11. If catheterised and bladder filled prior to theatre transfer, unclamp the catheter and empty the bladder just prior to cleaning the skin for Caesarean section.

5.3 Second Stage of Labour

- Consider assisted vaginal delivery with forceps or vacuum if the cervix is fully dilated and head below the ischial spines.
- For breech presentation, consider breech extraction with forceps to the after-coming head (this is open for debate, breech delivery should be elective with patient well counselled and with informed consent, and not under this circumstance).
- Replace the cord in the vagina gently if visible externally. This is to avoid exposure to air which can cause vasoconstriction and should not be done to allow labour to continue. **Do not handle the cord excessively – do not make more than one attempt to replace the cord.**

5.4 Management at the Threshold of Viability

- Expectant management should be discussed for cord prolapse complicating pregnancies with a gestational age at the threshold of viability (23+0 to 24+6 weeks) in line with the BAPM guidelines.[9]
- There is no evidence to support replacement of the cord into the uterus when prolapse occurs at or before the threshold of viability.
- Women should be counselled on both continuation and termination of pregnancy following cord prolapse at the threshold of viability.

5.5 Management in the Community

- Women should be advised, over the telephone, if necessary, to assume the knee-to-chest facedown position while waiting for hospital transfer (Appendix 1: Figure C).
- An emergency ambulance and an urgent transfer to hospital should be arranged. A community midwife should be contacted, if not already in attendance.
- A community midwife would be expected to attend to support the ambulance team if in the vicinity; however, transfer to hospital should not be delayed by the absence of a community midwife.
- If able, replace the cord back into the vagina. If the cord cannot be replaced into the vagina with minimal handling, apply warmed soaked normal saline gauze over it. Overhandling of the umbilical cord risks continued cord compression and vasospasm.
- Whilst in the ambulance, the safest position for transfer is left lateral pillow under the hip, with either manual displacement of the presenting part or by filling the bladder. Further management is as above.

5.6 Manoeuvres

A recent study using trans-perineal ultrasound to evaluate different methods of elevation found that the ‘knee-to-chest’ position was most effective, followed by bladder filling to 500mLs. Trendelenburg, left lateral with pillow under hip, and bladder filling with volumes <300mLs all had only ‘modest’ effects [10].

See Appendix 1 for illustrations of manoeuvres.

5.7 Management of Delivery

- A practitioner competent in neonatal resuscitation should attend all deliveries with a cord prolapse.
- Take paired cord blood samples for pH.

- Providing the CTG is normal, and measures have been taken to relieve pressure on the cord, take time to consider the approach to delivery and involve the patient and partner in the decision-making process. A recent study demonstrated no correlation between fetal blood pH and decision to delivery interval (n= 103,917, 130 cases cord prolapse, 4 neonates pH <7.2, median decision-to-delivery time = 11 minutes, median blood pH 7.28).[11]
- Give a clear explanation for the reason for emergency delivery to the mother postnatally, if possible, with her birth partner/partners. This explanation should be documented in the notes.
- Support for all staff involved, as appropriate.

6. TRAINING

All midwifery and obstetric staff should receive training in the management of cord prolapse, according to the NHS Clinical Negligence Scheme for Trusts (CNST) and Maternity Incentive Scheme (MIS).

7. AUDITABLE STANDARDS

Percentage of staff receiving annual skills and drills training.

8. MONITORING COMPLIANCE

The patient safety / risk management midwives will identify cases via incident reporting or clinical triggers and will arrange a review of the notes by the appropriate clinician (lead obstetrician, anaesthetist, paediatrician, or senior midwife). Any relevant risk issues identified will be discussed and actioned in the maternity risk management group or obstetric clinical governance group.

9. REFERENCES

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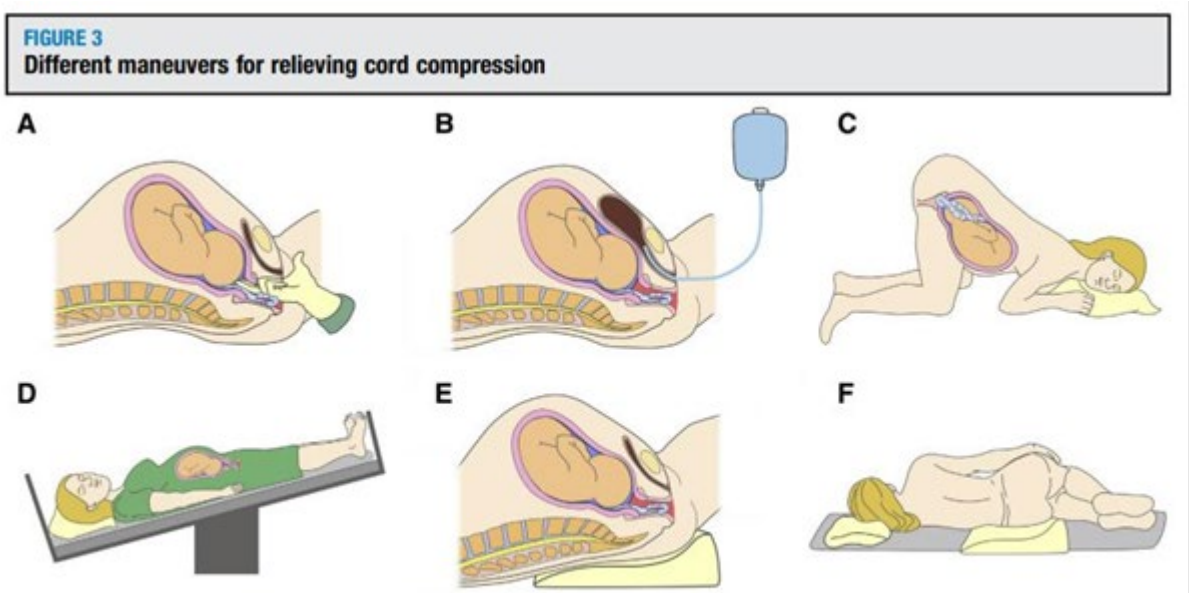
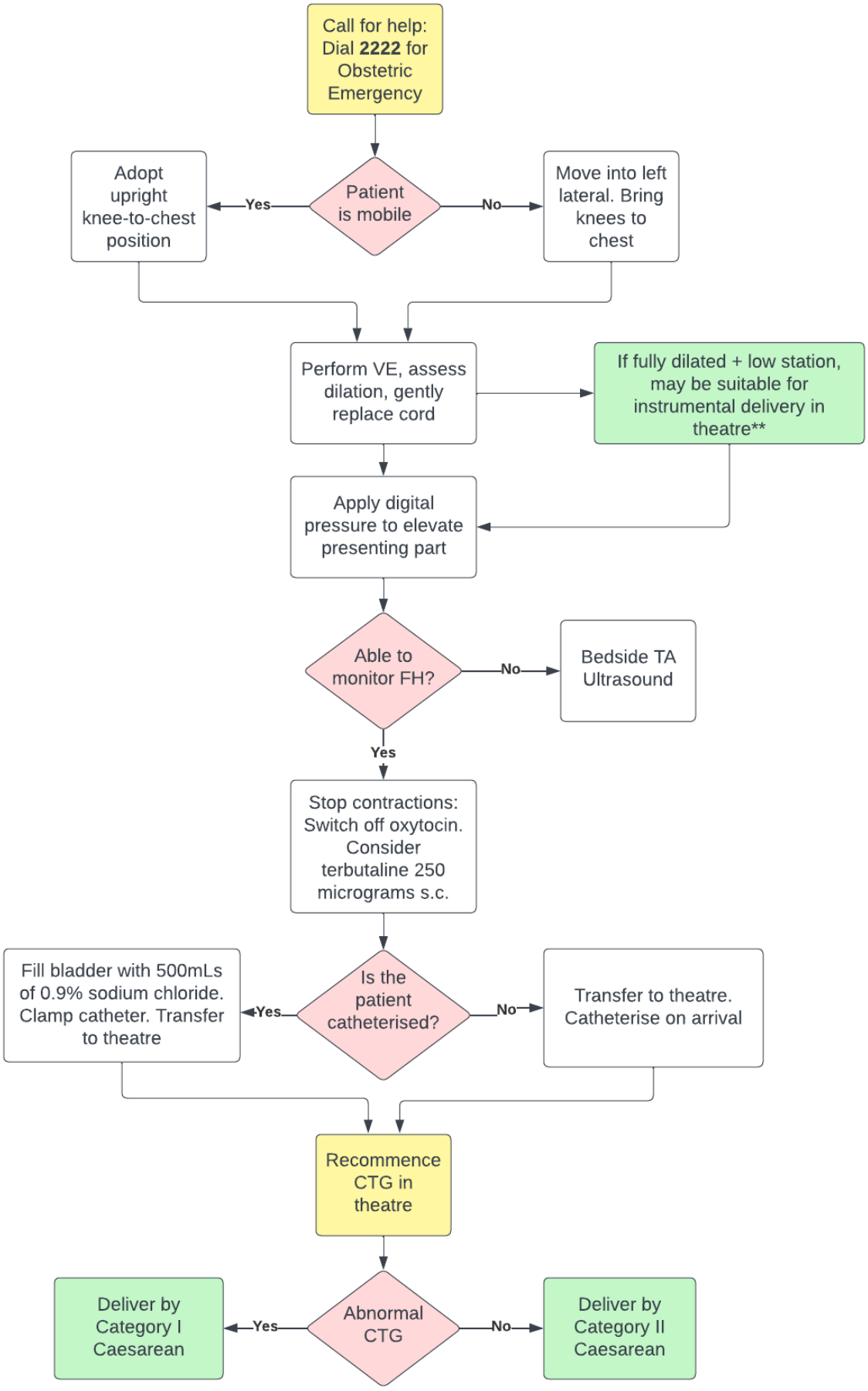
APPENDIX 1: MANOEUVRES

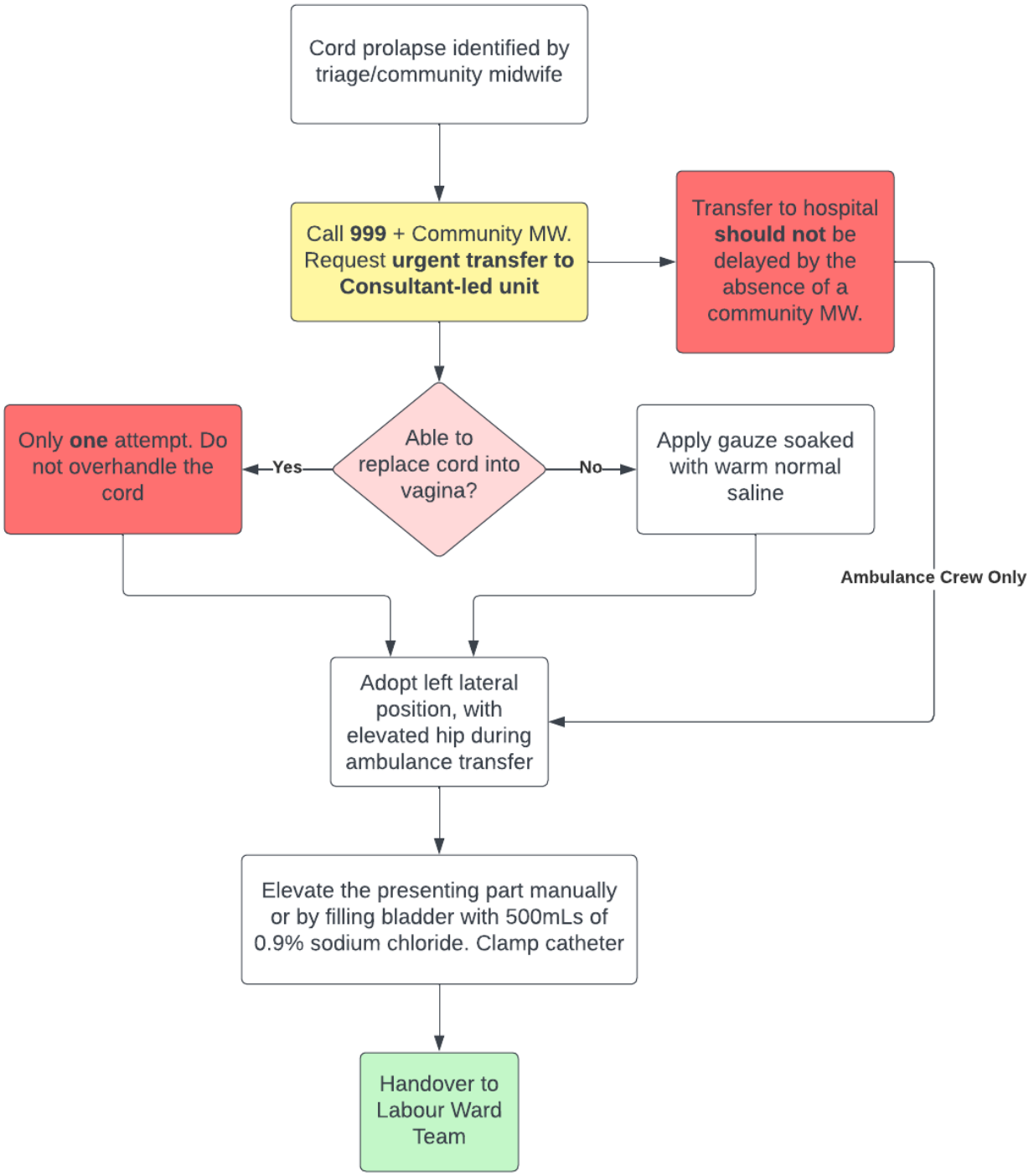


Above figure from: *Wong, L.; Kwan, A.H.W.; Lau, S.L.; Sin,W.T.A.; Leung, T.Y. Umbilical cord prolapse: Revisiting its definition and management. Am. J. Obstet. Gynecol. 2021, 225, 357–366.*

APPENDIX 2: MANAGEMENT OF CORD PROLAPSE IN THE HOSPITAL SETTING



APPENDIX 3: MANAGEMENT OF CORD PROLAPSE IN THE COMMUNITY



FULL VERSION CONTROL RECORD

Version:	3.0
Guidelines Lead(s):	Mr O Eniola, Consultant Obstetrics & Gynaecology
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Library check completed:	10.10.2023
Ratified at:	Cross Site Obstetrics Clinical Governance meeting, 21.11.2023
Date Issued:	29 November 2023
Review Date:	September 2023
Pharmaceutical dosing advice and formulary compliance checked by:	Ruhena Ahmed, 20.10.2023
Key words:	Cord prolapse, artificial rupture of membranes, presenting part

This guideline has been registered with the trust. However, clinical guidelines are guidelines only. The interpretation and application of clinical guidelines will remain the responsibility of the individual clinician. If in doubt, contact a senior colleague or expert. Caution is advised when using guidelines after the review date.

This guideline is for use in Frimley Health Trust hospitals only. Any use outside this location will not be supported by the Trust and will be at the risk of the individual using it.

Version Control Sheet

Version	Date	Guideline Lead(s)	Status	Comment
1.0	September 2016	Alison Kirkpatrick O. Eniola	Final	First cross site version
2.0	June 2020	Alison Kirkpatrick, O. Eniola, E. Hutchinson	Final	Updated and approved at OGCG 22.06.2020
3.0	September 2023	O. Eniola, Eberechi Anucha	Final	Updated and approved at Cross Site Obstetrics Clinical Governance meeting, 21.11.2023

Related Documents

None