Rhwydwaith Mamolaeth a Newyddenedigol Cymru
Wales Maternity and Neonatal Network

All Wales Maternity & Neonatal Guidelines

All Wales Preterm Birth Guidance

Prevention, Diagnosis and Management
Including the Diagnosis and Management of Preterm Labour (PTL) and Preterm Prelabour Rupture of Membranes (PPROM)

Documents to read alongside/ support this guideline	RCOG Green Top guideline number 75. Cervical Cerclage. Feb 2022

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Disclaimer: These guidelines have been ratified at the Maternity/Neonatal Guideline Meeting; 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.

Introduction and Aim

8% of all births will occur before 37 completed weeks of gestation. 70% of these are spontaneous following onset of spontaneous contractions or preterm prelabour rupture of membranes (PPROM).

Preterm birth is the biggest cause of neonatal morbidity and mortality in the UK[1].

Most women who present with threatened preterm labour will go on to deliver at term, even in the absence of intervention. It is essential to recognise those women who are at the highest risk in to target interventions to those who will benefit the most, minimising unnecessary treatment.

Objectives:

1. predict women at risk of PTB
2. implement strategies to prevent PTB
3. prepare the mother and baby when PTB is inevitable
4. where PTB has taken place before 34 weeks, the importance of post-pregnancy consultation with parents is also discussed

Scope

This procedure applies to maternity, neonatal and anaesthetic staff in all locations including those with honorary contracts.

Equality Health Impact Assessment	*An Equality Health Impact Assessment (EHIA) has been completed.*
Accountable Executive or Clinical Board Director	

Disclaimer

If the review date of this document has passed, please ensure that the version you are using is the most up to date either by contacting the document author or the Governance Directorate.

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3 Preventing Preterm Birth: specialised antenatal care

3.1 Identifying women at high risk of pre-term birth

Definitions:

	Gestation
Term	$37^{+0} – 41^{+6}$
Late preterm	$32^{+0} – 36^{+6}$
Early preterm	$28^{+0} – 31^{+6}$
Extreme prematurity	$22^{+0} – 27^{+6}$
Pre-viable	$\leq 21^{+6}$

All women should be assessed at booking for risk factors for preterm birth. This assessment should include modification of risk factors if appropriate.[3]

3.1.1 Associated modifiable risk factors

1. **Smoking cessation**: Smoking doubles the risk of preterm delivery[3] and therefore all women should be asked about smoking, and cessation advice and/or referral should be provided. Women who have experienced a previous preterm birth, who stopped smoking early in the pregnancy, modify their risk back to that of a non- smoker. If smoking cessation is delayed until the third trimester this modifiable benefit is lost.
2. **Maternal age**: Young women (<18 years) have an increased risk of preterm birth. Appropriate referral to teenage pregnancy teams should be offered to provide adequate support and advice throughout the pregnancy and may help prevent preterm birth.
3. **Domestic violence**: Women experiencing domestic violence and/or other social pressure should be directly counselled and referred for specific support through local pathways.
4. **Vaginal infection**: Pathogens such as *Neisseria Gonorrhoeae* and *Chlamydia Trachomatis* are associated with preterm birth, and screening should be offered to at-risk women. Healthcare professionals should inform pregnant women under the age of 25 years about the high prevalence of chlamydial infection in their age group and give details of their local National Chlamydia Screening Programme.
5. **Aspirin:** NICE recommends Aspirin* to reduce the risk of pregnancy complications related to placental dysfunction, particularly preeclampsia. Thus, it is important to take a full history from women who have had a previous baby with FGR and/or a preterm delivery to determine whether placental dysfunction was a contributory factor. Aspirin as a preventative medication appears to be safe in pregnancy and therefore there is a substantial net benefit of daily aspirin use to reduce the risk for preeclampsia and associated preterm birth. Aspirin is therefore recommended from the first to the third trimester of pregnancy in women, following risk assessment at their pregnancy booking visit.

Specialised antenatal care for women at high risk of preterm birth reduces the number of preterm births, and specialist clinical teams are recommended to deliver this care[2,3].

Trans-vaginal cervical length scans have been found to be a reasonable predictor of preterm delivery in women at high risk of spontaneous preterm birth[4]. There is a consistent association between cervical length below the 10th centile (25 mm) and spontaneous preterm birth[5].

Cervical cerclage[6] and progesterone[7] have been found to reduce the risk of preterm birth in women with risk factors and a short cervix.

3.1.2 High risk group

High risk	**Recommendation**
• Previous preterm birth or spontaneous mid-trimester loss (16 to 34 weeks' gestation). • Previous preterm prelabour rupture of membranes <34/40. • Previous use of cervical cerclage or progesterone to prevent PTB. • Known uterine variant (i.e., unicornuate, bicornuate uterus or uterine septum). • Intrauterine adhesions (Ashermann's syndrome). • History of trachelectomy (for cervical cancer). If women have had a TERM DELIVERY after the risk factor event, the risk of preterm birth is LOW and there is no need for cervical length screening.	1. Referral to consultant obstetrician, preferably with interest in PTB prevention (where available) before 16 weeks 2. Further risk assessment based on history +/- examination in secondary care to identify women needing referral to tertiary services. 3. Offer serial transvaginal cervix scanning, usually every 2-4 weeks between 14 and 24 weeks. Some women might need weekly scan. 4. Consider use of quantitative fetal fibronectin in asymptomatic women together with TV cervical length in the QUiPP app.

Table 1 High Risk Criteria for Preterm Birth

Women with a previous failed cerclage or a trachelectomy have a very high risk of preterm birth and may benefit from early elective cerclage[8]. Ideally this will have been covered at a postnatal appointment (following consideration of index cerclage placement) and an individualised recommendation made for an interpregnancy transabdominal cerclage. If the woman is pregnant, she should be referred to see a Consultant Obstetrician by 12 weeks.

A woman with a previous failed transvaginal cerclage will generally be advised to have an interpregnancy-sited trans abdominal cerclage.

3.1.3 Intermediate risk group

Intermediate risk	**Recommendation**
• Previous birth by caesarean section at full dilatation • History of significant cervical excisional event i.e., **LLETZ where >15mm** depth removed, or >1 LLETZ procedure carried out or cone biopsy (knife or laser, typically carried out under general anaesthetic). If women have had a TERM DELIVERY after the risk factor event, the risk of preterm birth is LOW and there is no need for cervical length screening.	1) Referral to consultant obstetrician, preferably with interest in PTB prevention (where available) before 16 weeks 2) Further risk assessment based on history +/- examination in secondary care. Discuss option of further risk assessment tests: o A single transvaginal cervix scan between 18-22 weeks as a minimum. o Consider use of quantitative fetal fibronectin in asymptomatic women **Management** Interventions should be discussed with women as appropriate based on either history or additional risk assessment investigations. Interventions include cervical cerclage, progesterone pessary.

Table 2 Intermediate Risk Criteria for Preterm Birth

3.2 Cervical length screening

Cervical length measurement should only be obtained by transvaginal scan.
Scanning criteria:

- Cervix should fill approximately 75% of screen.
- Empty bladder
- Anterior and posterior lips of cervix should be of equal width
- Record cervical length as the straight length between internal and external os (thin white arrow). If the cervix is curved, then it is highly unlikely to be short and should still be measured as a straight length. Funnel length (dotted arrow) **should not be included** in the cervical length measurement.
- 3 measurements should be within 10% of each other. The 'shortest best' measurement should be reported.

Cervical length of **25mm or more** is reassuring.
Cervical length of **less than 25mm** is significantly short and specialist management should be offered.

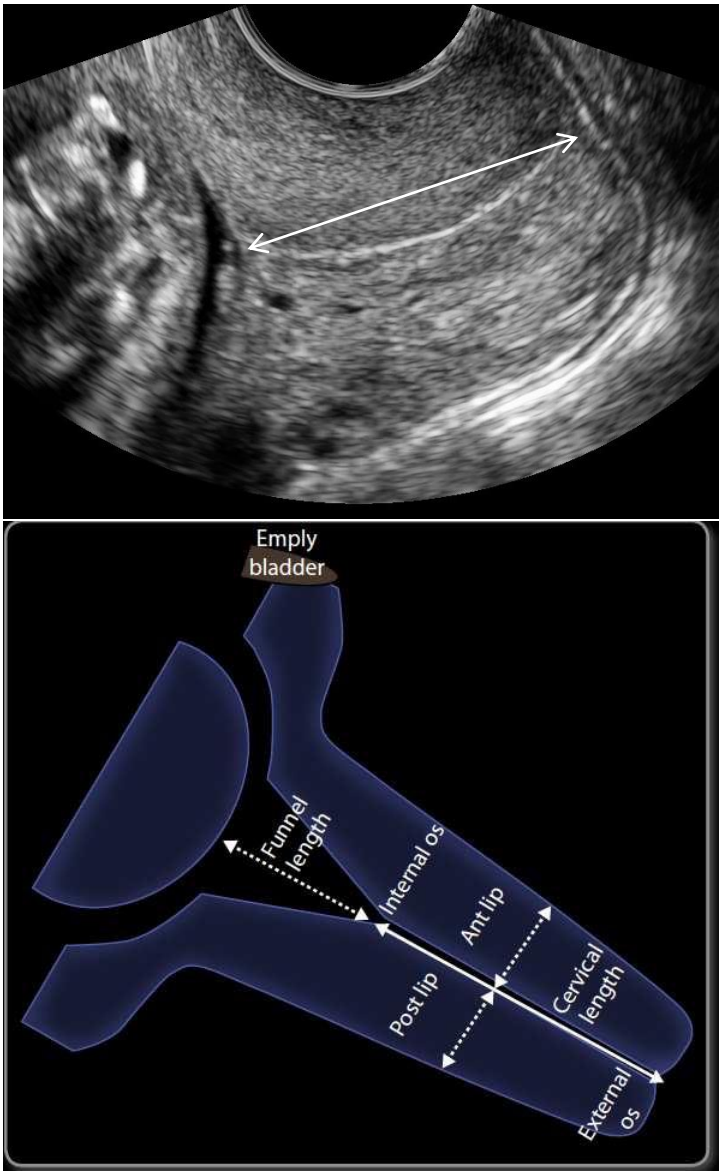

Figure 1 How to Measure Cervical Length on Transvaginal Ultrasound

3.3 Cervical cerclage

Cervical cerclage is indicated by history or scan findings.

See RCOG Guidance paper on Cervical cerclage[8] (2022) for indications, patient consent, management of SROM and timing of removal.

3.4 Progesterone

Progesterone should be offered to women with no risk factors for PTB in whom a short cervix is incidentally found on TVUSS, or for women who chose progesterone rather than cervical cerclage.

There is no consensus on the optimum dose or route of administration of Progesterone:

Suggested regimen:

Vaginal progesterone 200 to 400 milligrams once daily from 16 weeks to 34 weeks.

Inform women that this is an off-label use of progesterone

4 Prehospital management of babies born extremely preterm

The unplanned birth of an extremely preterm baby in an out of hospital setting is a challenging situation. Acknowledging the limitation of skills and equipment available, BAPM have produced a consensus document, supported by the RCM offering a pragmatic approach to the management of unexpected extreme preterm birth in an out of hospital setting. Pre-hospital management of the baby born at extreme preterm gestation | British Association of Perinatal Medicine (bapm.org)

5 Diagnosis of preterm labour (PTL) in women with intact membranes

5.1 History and examination

Establish accurate gestational age. A detailed history should be taken. When taking the history, risk factors for preterm labour (see 3.1.1,3.1.2) should be considered. Be aware of atypical symptoms in prematurity: gastro-intestinal (GI) symptoms (nausea, vomiting, diarrhoea), urinary frequency, abdominal or pelvic pressure (rather than pain) and backache.

5.1.1.1 Assessment

Carry out an initial assessment of any woman who may be in labour[10]:

Initial assessment of the woman:

- Review the antenatal notes (including all antenatal screening results)
- Ask her about the length, strength, and frequency of the contractions
- Ask about any pain that she is experiencing and discuss the options for pain relief
- Record her pulse, BP and temperature and perform a urinalysis
- Record if she has any vaginal loss

- Some women present with 'preterm labour' following assault, there is a need for vigilance for domestic violence in all women

Initial assessment of the unborn baby:

- Ask about the baby's movements over the last 24 hours
- Palpate the abdomen to determine the fundal height, the baby's lie, presentation, position, engagement of the presenting part, and the frequency and duration of any contractions. Be aware that abnormal lie and presentation are more common in preterm labour.
- Auscultate the fetal heart for at least 1 minute immediately after the contraction

5.1.1.2 Common problems/ pitfalls.

Problems associated with diagnosis and management include:

- Many women experience episodes of preterm uterine contractions that are not associated with progressive changes in the cervix and preterm delivery.
- Repeated digital examinations are associated with provoking preterm labour.
- A number of obstetric complications can lead to preterm labour. Common underlying causes include:
  - Intra-uterine infection +/- preterm prelabour rupture of membranes
  - Bleeding
  - UTI, especially if ascending
  - Pre-eclamptic spectrum

5.1.1.3 Examination

- Offer a speculum examination to assess for any vaginal loss and cervical dilatation (do not use any lubricating gel if you plan to take a sample for fFN).
- If she fulfils the criteria for fetal fibronectin to be tested, then the sample should be taken at this point.
- Following fFN sampling consider a microbiology high vaginal swab
- If the extent of cervical dilatation cannot be assessed on speculum, a digital vaginal examination may be required but be aware that this reduces the interval to delivery. If this is the case, then take the fFN sample before performing a digital examination and discard the sample if she is then found to be ≥3cm dilated.

5.2 Fetal fibronectin

Fetal Fibronectin (fFN) is a glycoprotein that is produced by fetal cells and acts as a biological adhesive between the chorion and the decidua. Any local inflammatory, infectious, or mechanical damage may result in fFN "leaking" into the vagina. The concentration of fFN in the cervicovaginal fluid is relative to the risk of spontaneous preterm labour.

Criteria for using fFN	Contraindications to fFN
• Signs and symptoms of preterm labour between 24 weeks and 34+6 weeks of gestation • Intact membranes • Cervix < 3cm dilated	• Ruptured membranes (If in doubt take ROM test and only process FFN if negative) • Cervix ≥3cm dilated • Any contraindication to tocolysis • A symptomatic patient with a cervical cerclage • Moderate/severe vaginal bleeding (may give false positive result). • Sexual intercourse or vaginal examination within the last 24 hours, however o If fFN is done in this situation, then a result of <50ng/mL can still be interpreted as a valid negative result. A result >50ng/mL may be either a true or a false positive and cannot be relied upon – in this context the sample should be repeated ≥24 hours after the most recent examination.

Table 3 Criteria and Contraindications for the Use of Fetal Fibronectin

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5.2.1 QUiPP App

The free mobile app '**QUiPP**' QUiPP: A tool to predict spontaneous preterm birth will generate an individualised risk based on the patient's history, cervical length (if available) and fFN result. This allows for more tailored counselling. The QUiPP app should not be used as the sole clinical decision maker, especially when providing reassurance in high risk women.

If signs or symptoms indicate abnormal or premature uterine activity AND the QUiPP App symptomatic risk score of ≥ 5% PTB within one week, the following should be considered.

1. Admit and inform NNU
2. Advise antenatal corticosteroids and counsel accordingly
3. Tocolysis, consider
4. Antibiotics effective against group B streptococcus (GBS) if in labour
5. Magnesium Sulphate if in labour (can be considered up to 34+0/40)

(See below for full management guidelines and Figure 5 PERIPrem Cymru Clinical Passport)

5.3 Transvaginal cervical length scanning

If a patient is not suitable for fetal fibronectin testing but has symptoms suggestive of preterm birth, discuss with the Consultant Obstetrician on call as to whether she would be suitable for cervical length measurement. This should be performed by an obstetrician or sonographer who is trained and experienced in transcervical scanning.

If the cervical length is ≤15mm the following should be considered:

1. Admit and inform NNU
2. Advise antenatal corticosteroids and counsel accordingly
3. Tocolysis
4. Antibiotics effective against group B streptococcus (GBS) if in labour
5. Magnesium Sulphate if in labour and <30/40 (can be considered up to 34+0/40)

(See below for full management guidelines and Figure 5 PERIPrem Cymru Clinical Passport)

6 Management of all preterm labour, PERIPrem Cymru and antenatal optimisation to improve outcomes

6.1 Antenatal Optimisation

PERIPrem Cymru encompasses the full perinatal bundle of interventions for antenatal and postnatal optimisation. Antenatal elements include Place of Birth, Antenatal Steroids, Antenatal Magnesium Sulphate, and Intrapartum Antibiotic Prophylaxis.

Figure 2- principles of antenatal optimisation[20]

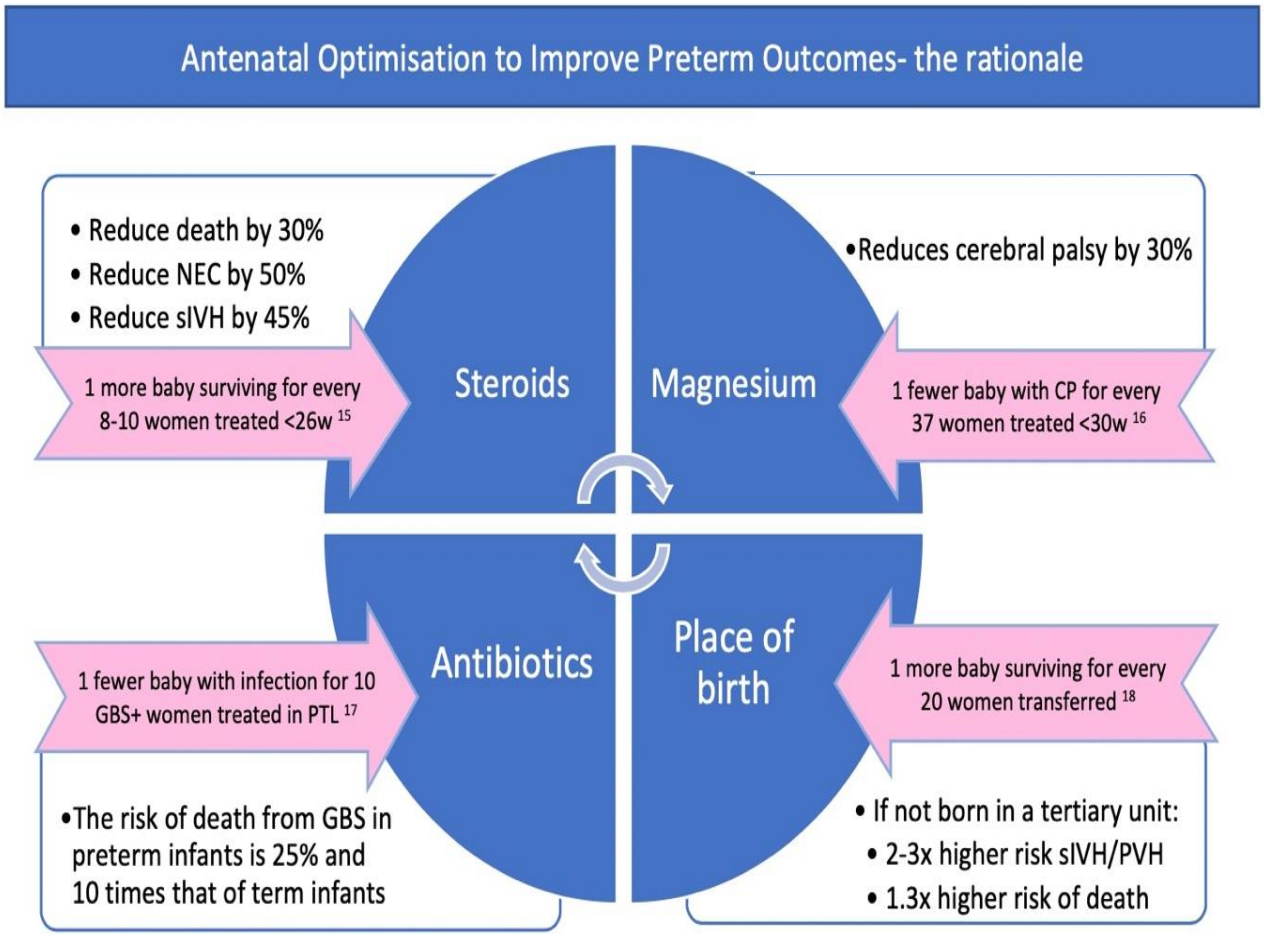
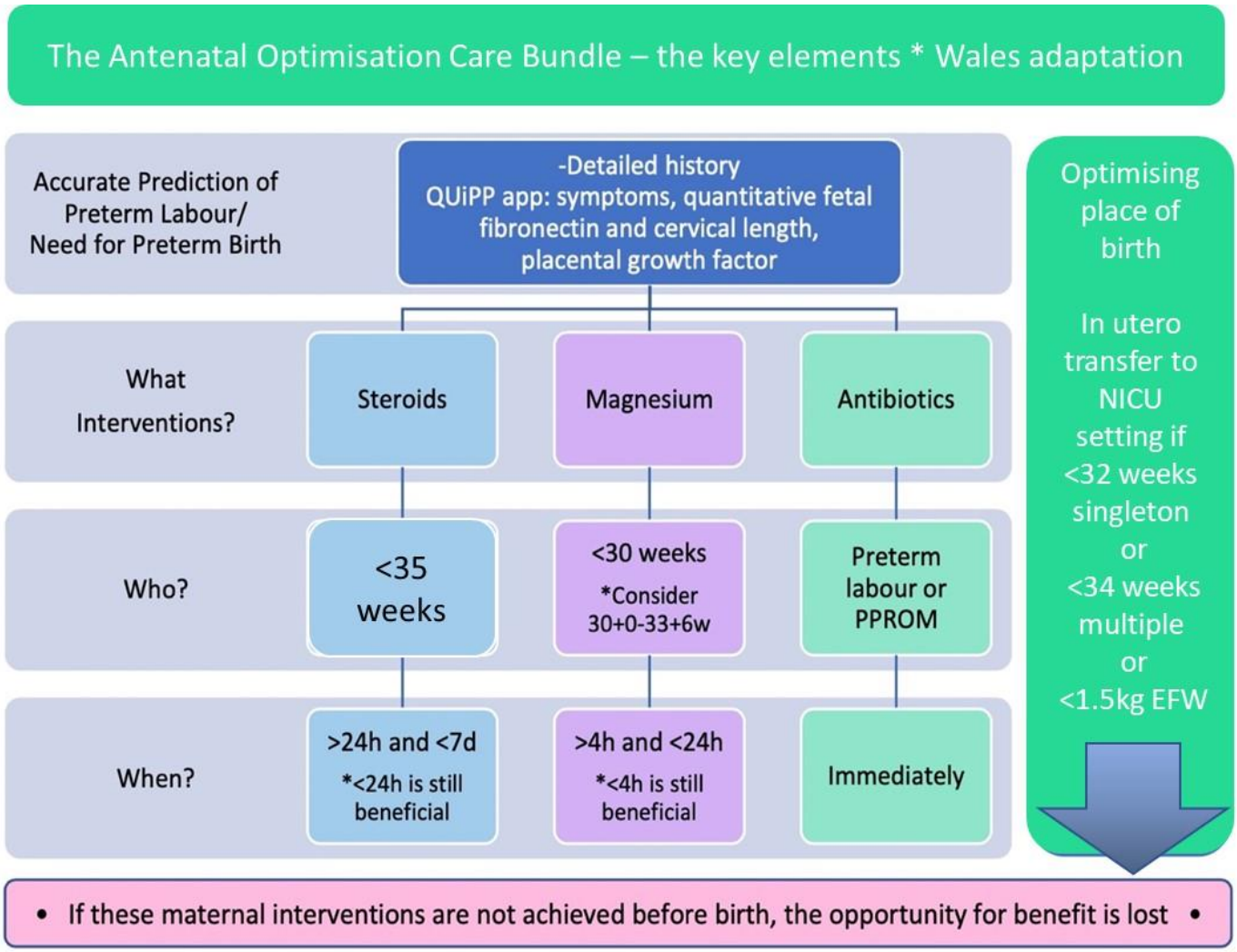


Figure 3 – PERIPrem Cymru Antenatal optimisation care bundle – key elements[20] There are regional variations in NICU provision. In North Wales the Sub-Regional Neonatal Intensive Care Centre (SuRNICC) based at Glan Clwyd Hospital accepts babies ≥ 26 weeks gestation. Where birth is anticipated ≤ 26 transfer of patients to units in England may be needed.



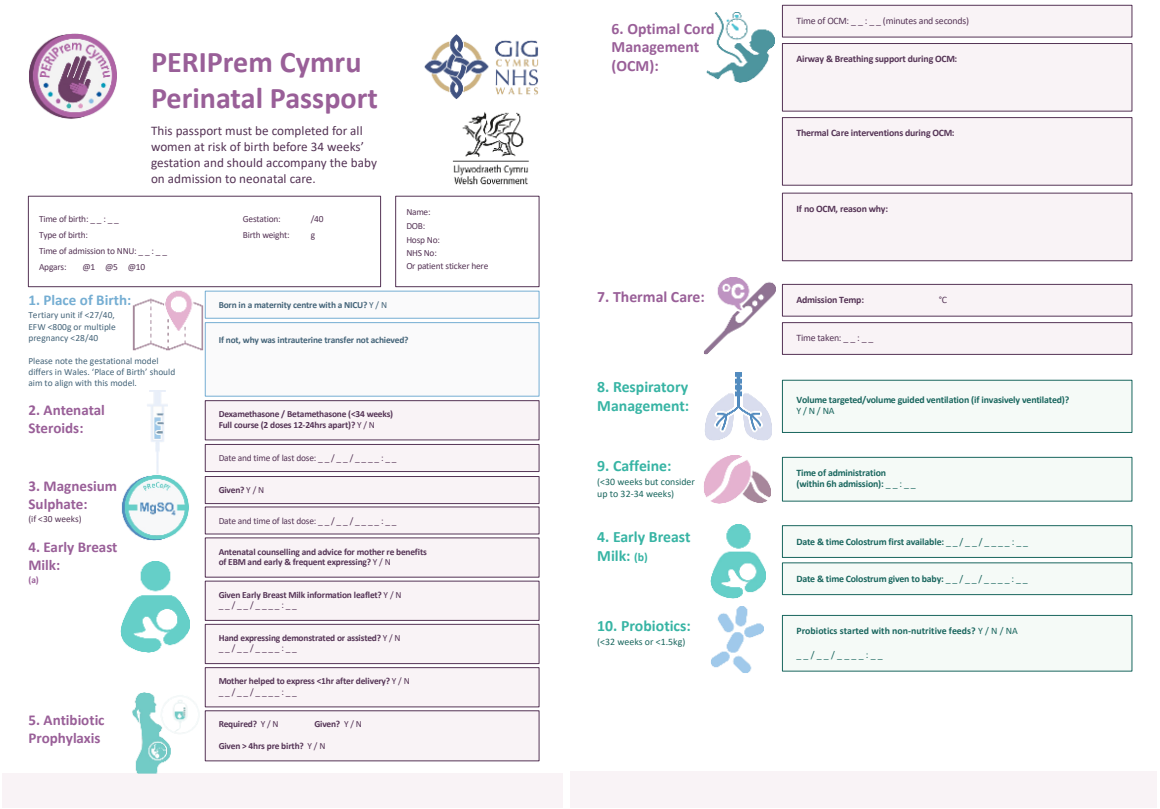


Figure 4 – PERIPrem Cymru Clinical Passport

6.2 Parental discussion

All parents should be issued a PERIPrem Cymru baby passport and given the opportunity to ask any questions regarding the care bundle (Appendix 13.9). The importance of early breast milk and resources to lessen parental anxiety (Tommy's web site) should be discussed with all parents at an appropriate time.

PERIPrem Cymru strongly supports and encourages antenatal and immediate postnatal expressing. Parents should be provided with the PERIPrem Cymru Early Maternal Breast Milk leaflet (Appendix 13.10)

7 Management of Preterm Labour <37 weeks' gestation

7.1 Corticosteroids

All women giving birth before 35 weeks of gestation, should be offered a full course of antenatal steroids ideally less than 7 days prior to birth, and completed 24-48 hours before birth. [22] For women with a small for gestational age baby between 35 and 35+6, consider a course of antenatal steroids after taking the full clinical picture into account.

Women between 22-23^{+6} weeks of gestation presenting with preterm labour or PPROM should be reviewed by a senior obstetrician and a senior neonatal clinician and a detailed discussion with the parents to discuss the management plan at delivery should take place. If the decision is for active care, then antenatal corticosteroids should be offered.

An attempt should be made to accurately predict preterm delivery (e.g., using QUiPP app), before starting a course of corticosteroids.

7.1.1 Corticosteroid Regime

Betamethasone 12mg IM, two doses 24 hours apart.

If Betamethasone is not available, Dexamethasone is given 6mg IM, for four doses, 12 hours apart.

Birth should not be delayed for antenatal corticosteroids if the indication for birth is impacting the health of the woman or her baby.

Antenatal corticosteroid use reduces neonatal death when the first dose is given within the 48 hours prior to birth.

Benefits are also seen when the first dose is given within 24 hours of birth and antenatal corticosteroids should still be given if birth is expected within this time.

Repeat steroids may be considered in a select high risk group of women, considering the possible impact on fetal growth.

Consider a single repeat course of maternal corticosteroids for women less than 34+0 weeks of pregnancy who: have already had a course of corticosteroids when this was more than 7 days ago and are at very high risk of giving birth in the next 48 hours.

Where the woman is less than 30+0 weeks pregnant or if there is suspected growth restriction, consider the possible impact on fetal growth of a repeat course of maternal corticosteroids. Do not give more than 2 courses of maternal corticosteroids for preterm birth.[1]

7.2 Tocolysis

There is no clear evidence that tocolytics improve outcome, it is therefore reasonable not to use tocolytic drugs. Tocolytics should only be used delaying delivery has recognised benefits:

- To allow corticosteroid administration (if used tocolytics should be continued until 24 hours after the administration of the second steroid dose)
- To facilitate in-utero transfer

Tocolytics should be offered to women between 24^{+0}- and 33+6-weeks' gestation who have intact membranes and are in suspected or diagnosed preterm labour.

The use of tocolytics (and steroids) before 24^{+0} should be discussed with the Obstetric Consultant and Neonatal team.

Nifedipine and Atosiban have comparable efficacy. Nifedipine is used as first line. Betamimetics (e.g. – Terbutaline) should NOT be used for tocolysis in this context.

Contraindications to Tocolysis:

- Ruptured membranes
- Advanced dilatation
- Moderate/heavy APH
- Uterine infection
- Severe lethal anomaly
- Severe IUGR/Fetal compromise
- Severe PET

7.2.1 Tocolytic: Nifedipine (First Line)

Loading: Oral Nifedipine tablet 10mg on four occasions 20 minutes apart (i.e. – 10mg orally at 0, 20, 40 and 60 minutes).

OR, at 20-minute intervals until contractions stop, up to a maximum of 4 doses.

NB: Short acting nifedipine is associated with a sudden drop in blood pressure. Maternal observations should be done every 15 minutes throughout loading dose, and continuous CTG should be applied.

Maintenance: Oral Nifedipine modified release (MR) tablet 20mg, given 4 hours after loading dose. This is followed by Nifedipine MR 20mg 8 hourly for 48 hours or until a clinician directs for it to be stopped.

7.2.2 Tocolytic: Atosiban (Second Line)

Atosiban is generally only used if Nifedipine is contraindicated (severe maternal cardiopulmonary compromise) or if there is an intolerance to Nifedipine. It is expensive and has a short shelf life. Decision to stock needs consideration by individual units.

7.3 Magnesium sulphate for fetal neuroprotection

Antenatal Magnesium Sulphate therapy given to women at risk of preterm birth within the next 24 hours reduces the risk of cerebral palsy and the rate of substantial gross motor dysfunction in their children.

Magnesium Sulphate prophylaxis is recommended for all women giving birth before 30^{+0} weeks of gestation and should be considered for all women giving birth before 33^{+6}.

Regimen:

Loading dose: 4 grams Magnesium sulphate over 20 minutes

Maintenance: 1 gram / hour for up to 24 hrs, can be discontinued if clinical situation changes and labour thought unlikely.

Caution: When given in conjunction with calcium channel antagonists (Nifedipine), cardiovascular and neuromuscular effects may be exaggerated.

Women between 22-23^{+6} weeks of gestation presenting with preterm labour or PPROM should be reviewed by a senior obstetrician and a senior neonatal clinician and a detailed discussion with the parents to discuss the management plan at delivery should take place. If the decision is for active care, then magnesium sulphate should be considered.[20]

Delivery should not be delayed solely for magnesium sulphate administration. Magnesium sulphate infusions should not be used during antenatal transfer. Magnesium sulphate when given solely for protection against cerebral palsy is discontinued after delivery. There is insufficient evidence that a repeat course of antenatal magnesium sulphate for fetal neuroprotection should be administered.

Avoid prolonged / repeated antenatal administration >5 days. Prolonged use is associated with neonatal skeletal adverse effects, hypocalcaemia and hypermagnesemia and should only be considered in exceptional circumstances.

7.3.1 Side Effects

Maternal:

- facial flushing
- nausea, and vomiting
- sweating
- injection site problems
- hypotension
- tachycardia
- muscle weakness and paralysis

7.3.2 Monitoring for Magnesium Sulphate Toxicity

Every 30 minutes until discontinued	Every 4 hours minimum
Respiratory rate	Blood pressure
Pulse oximetry	Urine output
	Tendon reflexes

Discontinue infusion if:

- No patellar reflexes
- Urine output <30ml/hour
- Respiratory rate <12/minute
- Weakness, nausea, sensation of warmth, flushing, drowsiness, double vision, and slurred speech

7.3.3 Antidote to Magnesium Sulphate

If Magnesium Sulphate toxicity is suspected give Calcium Gluconate 1 g / iv.

7.4 Antibiotics in labour

Recommend antibiotic prophylaxis to prevent early onset neonatal Group B Streptococcal (GBS) infection antibiotics to all women in established preterm labour [17].

The risk of vertical transmission of GBS infection is higher in preterm infants and the mortality from neonatal GBS infection is 10 times higher than at term.

Women should be given antibiotic prophylaxis in line with individual Health Board Microguide.

7.5 Place of birth and In Utero Transfer (IUT)

Singleton infants less than 32 weeks of gestation, multiples less than 34 weeks of gestation and infants where the estimated fetal weight is less than 1500g, should be born in a maternity service on the same site as a neonatal intensive care unit (NICU). In North Wales the Sub-Regional Neonatal Intensive Care Centre (SuRNICC) based at Glan Clwyd Hospital accepts babies ≥ 26 weeks gestation. Where birth is anticipated ≤ 26 transfer of patients to units in England may be needed.

If NICU does not have capacity, consider in utero transfer to another unit if clinically appropriate. The reason for transfer should be discussed with the family and clearly documented.

- It is essential that the counselling received, and delivery plans are clearly communicated to the receiving hospital to ensure continuity of care. An All-Wales Intrauterine Transfer communication form should be completed.
- If In-utero transfer is not possible the baby may be stabilised and transferred after delivery.
- All in-utero transfers should be recorded locally.

Contraindications to In Utero Transfer:

- Active labour
- Acute or imminent maternal or fetal compromise

If there is any doubt about the feasibility of IUT, the case should be discussed with the Consultant Obstetrician.

7.6 Clinical decision-making and counselling

Discussions and decisions should be multidisciplinary involving the obstetrician, midwife, neonatologist and the parents. All discussions and management decisions should be clearly documented.

Discussions and decision making at gestations <27^{+0} weeks should be guided by the Extreme Preterm Pathway All Wales Standards (appendix 13.1-7)

7.7 Fetal monitoring in preterm labour

Discuss with women in suspected, diagnosed or established preterm labour (and their family members or carers as appropriate):

- the purpose of fetal monitoring and what it involves
- the clinical decisions it informs at different gestational ages
- if appropriate, the option not to monitor the fetal heart rate

Decisions should be made jointly between the patient, the Obstetric team, and the Neonatal team.

Involve a senior obstetrician in discussions about whether and how to monitor the fetal heart rate for women who are between 22+0 and 25+6 weeks pregnant. Please refer to the 'Management of Extreme Preterm Labour Integrated Care Pathway'.

DO NOT use a fetal scalp electrode for fetal heart rate monitoring if the woman is less than 34+0 weeks pregnant UNLESS all the following apply:

- it is not possible to monitor the fetal heart rate using either external cardiotocography or intermittent auscultation
- it has been discussed with a senior obstetrician
- the benefits are likely to outweigh the potential risks
- the alternatives (immediate birth, intermittent ultrasound, and no monitoring) have been discussed with the woman and are unacceptable to her

Discuss with the woman (and her family members or carers as appropriate) the possible use of a fetal scalp electrode between 34+0 and 36+6 weeks of pregnancy ONLY IF it is not possible to monitor the fetal heart rate using either external cardiotocography or intermittent auscultation.

7.8 Optimal Cord Management

Optimal cord management should be discussed and agreed by the obstetrician and neonatologist prior to delivery. Delaying cord clamping >60 seconds may reduce mortality by a third. During optimal cord management, respiration should be supported which may involve neonatal nurse or doctor joining the obstetric team at a caesarean section, or alongside resuscitation techniques at vaginal birth.

7.9 Thermoregulation

For all babies < 34 weeks, thermoregulation is crucial, immediately after delivery, even before the umbilical cord is clamped.

The delivery room temperature should be between 23-25 degrees and 26 degrees for babies born under 28 weeks and every effort made to achieve this pre-birth. Hypothermia in preterm infants increases risk of death, hypoglycaemia, metabolic acidosis, respiratory distress and acidosis, necrotising enterocolitis, coagulation defects and intraventricular haemorrhage.

Improve temperature, by using a plastic bag (do not dry baby before), putting a hat on baby and using a heater, using real time temperature monitoring during resuscitation.

8 Management of Preterm Labour < 26 weeks' gestation

8.1 Principles: obstetric emergency

This is an emergency and requires

- Experienced multidisciplinary perinatal staff.
- Good communication with parents, and between professionals.
- Documentation of discussion with parents.
- Appropriate counselling based on recent data using Extreme preterm pathway documents.
- Every case of spontaneous preterm labour is a unique situation and treated individually.
- The parents' hopes and expectations need to be explored with honesty and compassion in a realistic way, drawing upon the available evidence. Communication and agreed plans must be documented in full and signed legibly. These plans may need to be revised frequently.
- Prior agreed management plan for the birth if time permits, particularly if $<25^{+0}$ gestation, and should be fully documented.
- There should be an expectation of resuscitation at 24^{+0} weeks and beyond.

Documentation and management should be completed using the Extreme preterm pathway documents, See appendices

8.2 Counselling of parents

Outcomes differ significantly based on gestational age at delivery. The British Association of Perinatal Medicine has produced a Framework for Practice for the Perinatal Management of Extreme Preterm Birth before 27 weeks of gestation.

For prematurity <26 weeks, the US National Institutes of Health Extremely Preterm Birth Outcomes Tool: https://www.nichd.nih.gov/research/supported/EPBO, is available online for free. The tool considers a range of disability. Though risk is individualised, the tool does not take account of fetal maturation during the week. A senior neonatal clinician and a senior obstetrician should perform counselling, ideally in a multidisciplinary setting with midwifery and/or nurse support. This should be done at the earliest opportunity to offer parents time to process the information and make decisions. Follow up consultations may be appropriate to finalise management plans.

A decision should be made, in conjunction with the parents, regarding the type of care to be provided to the baby at delivery. This will be either active (survival focused) care or palliative (comfort focused) care. The decision should be based on balanced information considering fetal and maternal risk factors and clearly documented in the maternal notes, using the Extreme preterm pathway documents. This decision should be regularly reviewed and changed if circumstances or risk factors change and may be influenced by the baby's condition at delivery. This should be explained to the parents and full discussion with them regarding the management options and what they entail should take place. Use the Extreme Preterm Pathway for recording discussions.

8.3 Mode of delivery

Discuss the general benefits and risks of caesarean section and vaginal birth with women in suspected, diagnosed or established preterm labour and women with PPROM (and their family members or carers as appropriate).

Explain to women in suspected, diagnosed or established preterm labour and women with PPROM the benefits and risks of caesarean section that are specific to gestational age. Highlight the difficulties associated with performing a caesarean section for a preterm birth, especially the increased likelihood of a vertical uterine incision and the implications of this for future pregnancies. Explain to women in suspected, diagnosed or established preterm labour that there are no known benefits or harms for the baby from caesarean section, but the evidence is very limited.

Consider caesarean section for women presenting in suspected, diagnosed or established preterm labour between 26^{+0} and 36^{+6} weeks of pregnancy with breech presentation.

8.4 Monitoring in labour if vaginal delivery

Involve a senior obstetrician in discussions about whether and how to monitor the fetal heart rate for women who are between 23^{+0} and 25^{+6} weeks pregnant. Explain the different fetal monitoring options available being aware that:

- there is limited evidence about the usefulness of specific features to suggest hypoxia or acidosis in preterm babies
- the available evidence is broadly consistent with that for babies born at term (see monitoring during labour in NICE's guideline on intrapartum care)
- a normal cardiotocography trace is reassuring and indicates that the baby is coping well with labour, but an abnormal trace does not necessarily indicate that fetal hypoxia or acidosis is present.
- there is an absence of evidence that using cardiotocography improves the outcomes of preterm labour for the woman or the baby compared with intermittent auscultation

Fetal scalp electrode and fetal blood sampling is not recommended.

9 Diagnosis of Preterm Prelabour Rupture of Membranes (PPROM)

Preterm prelabour rupture of membranes (PPROM) complicates up to 3% of pregnancies and is associated with 30–40% of preterm births. PPROM can result in significant neonatal morbidity and mortality, primarily from prematurity, sepsis, cord prolapse and pulmonary hypoplasia. In addition, there are risks associated with chorioamnionitis and placental abruption. The median latency after PPROM is 7 days and tends to shorten as the gestational age at PPROM advances.

9.1 History and examination

The ‘gold standard’ for diagnosing PPROM is to take a detailed history and perform a sterile speculum examination[12]. A pool of liquor in the vagina is diagnostic and no further testing is needed. However clinical assessment alone may be equivocal in 10-20% of cases. If pooling of liquor is NOT seen or if examination findings are equivocal, then a point of care test should be used.

9.2 Point of care tests for diagnosing ruptured membranes

If pooling of amniotic fluid is not observed, perform an insulin-like growth factor binding protein-1 test (Actim PROM) or placental alpha-microglobulin-1 (AmniSure (®) test) of vaginal fluid.

If the results of the insulin-like growth factor binding protein-1 or placental alpha-microglobulin-1 test are positive, do not use the test results alone to decide what care to offer the woman, but also consider her clinical condition, her medical and pregnancy history and gestational age, and either:

- offer care consistent with the woman having P-PROM **or**
- re-evaluate the woman's diagnostic status at a later time point.

If the results of the insulin-like growth factor binding protein-1 or placental alpha-microglobulin-1 test are negative and no amniotic fluid is observed:

- do not offer antenatal prophylactic antibiotics
- generally, the woman can be discharged back to their normal antenatal care without the need for further visits or investigations
- explain to the woman that it is unlikely that she has P-PROM, but that she should return if she has any further symptoms suggestive of P-PROM or preterm labour.

10 Management of Preterm Prelabour rupture of membranes (PPROM)

10.1 Antibiotic Prophylaxis

Following the diagnosis of PPROM oral antibiotics should recommended:

Erythromycin 250mg QDS for 10 days (if allergic see Health Board Microguide) or until the woman is in established labour, whichever is sooner.

10.2 Antenatal Corticosteroids

Corticosteroids should be discussed and offered between 24^{+0}- and 34^{+6} weeks gestation in line with the latest RCOG Green Top guidelines. [22]

10.3 Identifying Infection

A combination of clinical assessment including:

- pulse,
- blood pressure
- temperature,
- symptoms
- maternal blood tests: C-reactive protein + white cell count
- fetal heart rate (CTG)

should be used to diagnose chorioamnionitis in women with PPROM. These parameters should not be used in isolation but should inform the clinical situation as a whole.

The white cell count will rise 24 hours following administration of corticosteroids and should return to baseline 3 days following administration.

10.4 Ongoing management

The optimal method and place of monitoring to predict adverse fetal outcome after PPROM has not been determined. If delivery seems imminent, then in-patient care is indicated to prepare the woman for birth (including, if relevant, the administration of intravenous magnesium sulphate).

The decision to offer outpatient care to women with PPROM, following a period of in-patient care, should be made on an individual basis. Factors including past obstetric history, support at home and distance from the hospital should be considered in discussion with the woman about her preferences, and markers of delivery latency should be assessed (the presence of antepartum haemorrhage, amniotic fluid volume, gestational age at which PPROM occurs and clinical and laboratory markers of infection).

When considering the gestational age at which PPROM occurs, delivery latency remains relatively constant from 24+0 to 28+0 weeks gestation at 8–10 days (median) and then decreases to 5 days (median) at 31+0 weeks.

Women with clinically diagnosed PPROM who have reduced amniotic fluid volumes on ultrasound are more likely to give birth within 7 days from membrane rupture.

A retrospective cohort study of women with PPROM who had planned home care, found that **membrane rupture occurring before 26^{+0} weeks, non-cephalic presentation and oligohydramnios** were associated with an increased risk of 'complication' (defined as fetal death, placental abruption, umbilical cord prolapse, delivery outside of hospital and neonatal death).

Inpatient care should be recommended to women who have all three of these features.

10.4.1 Inpatient

When cared for as an inpatient, women with PPROM should have their vital signs, including pulse, blood pressure, respiratory rate, and temperature, recorded on an obstetric early warning chart. This should be done once every 4 hours. CTG should be performed twice daily. They should also be observed for clinical symptoms and signs of infection.

10.4.2 Outpatient

When cared for as an outpatient, women should be advised of the symptoms of chorioamnionitis and be reviewed 1-2 times a week until delivery. Each review should include blood tests (Full blood count and C-reactive protein), clinical recordings of maternal observations and fetal heart rate monitoring. If the woman has any concerns, she should attend the hospital immediately.

The discharging consultant should decide frequency of outpatient review. An antenatal clinic appointment should be arranged for within 1 week of discharge to make an ongoing plan of antenatal care and decision regarding timing of delivery.

10.4.3 Fetal monitoring

Fetal growth should be assessed on ultrasound scan fortnightly. Many clinicians will monitor amniotic fluid and umbilical artery Doppler studies weekly, though there is little evidence to support this. However, it does provide an opportunity for medical review and assessment for chorioamnionitis.

10.5 Timing of delivery

Women whose pregnancy is complicated by PPROM after 24+0 weeks gestation and who have no contraindications to continuing the pregnancy should be offered expectant management until 37+0 weeks; timing of birth should be discussed with each woman on an individual basis with careful consideration of patient preference and ongoing clinical assessment.

For those with evidence of GBS colonisation in the current pregnancy or in previous pregnancies, the perinatal risks associated with preterm delivery at less than 34 +0 weeks of gestation are likely to outweigh the risk of perinatal infection. For those at more than 34 +0 weeks of gestation it may be beneficial to expedite delivery if a woman is a known GBS carrier.

11 POSTNATAL CARE FOR ALL WOMEN EXPERIENCING A PRETERM BIRTH <34 WEEKS

Follow up pathways are imperative for all women who have undergone a preterm birth. All women who have delivered prior to 34 weeks should be offered a postnatal consultation by the local obstetric team, and if repeated or more complex, by a more experienced preterm prevention specialist.

This facilitates debriefing and provides information regarding the delivery. It should also lead to a plan of care prior to and during any future pregnancy.

Placental histology should be requested for all deliveries <34 weeks gestation and these examinations should be undertaken by a specialist perinatal pathologist to assess for signs of infection/inflammation and ischaemia/infarction.

In addition, psychological support should be available where required.

Women with a history of extreme preterm birth (<28 weeks) despite the placement of a transvaginal cerclage should be counselled about the option of a transabdominal cerclage, either before a next pregnancy (laparoscopic or open), or early in a next pregnancy (open).

12 Auditable Standards

12.1 Prediction of preterm birth

Aim: All women who are at risk of preterm birth (including both those in threatened preterm labour and those requiring to be delivered because of maternal or fetal indications), are identified appropriately and in a timely manner using evidence-based methods.

a. What proportion of women with risk factors for preterm birth are appropriate risk-stratified and referred to a preterm birth clinic during their pregnancy?

b. What proportion of women presenting to assessment units and labour wards in threatened preterm labour who are risk-stratified using an appropriate risk-assessment tool (e.g., QUIPP app: fetal fibronectin +/- cervical length assessment)?

c. What proportion of women experience in utero transfer for possible preterm labour but do not go on to deliver?

12.2 Use of Antenatal corticosteroids

Aim: All women giving birth before 34 weeks of gestation, should receive a full course of antenatal steroids no longer than 7 days prior to birth, and ideally completed 24-48 hours before birth

a. What proportion of women in your unit /network achieved this?

b. What proportion of women in your unit/network giving birth before 34w received no antenatal steroids at all?

c. What proportion of women in your unit/network giving birth before 34w received an incomplete course of steroids?

d. What proportion of women in your unit/network giving birth before 45w had more than one complete course of steroids prior to birth?

e. What proportion of women in your unit/network received a full course of steroids greater than 7 days before birth?

f. What proportion of women receiving steroids did not give birth before 37w?

12.3 Use of Magnesium sulphate

Aim: All women giving birth before 30 weeks of gestation, should receive a loading dose and ideally a minimum of a 4-hour infusion of antenatal magnesium sulphate within the 24 hours prior to birth

a. What proportion of women in your unit/network achieved this?

b. What proportion of women received only a full or partial loading dose without infusion?

12.4 Antibiotic administration

Aim: All women in established preterm labour should receive intrapartum antibiotic prophylaxis to prevent early onset neonatal Group B Streptococcal (GBS) infection irrespective of whether they have ruptured amniotic membranes.

a. What proportion of women in your unit/network received appropriate intrapartum prophylaxis against GBS?

b. What is the prevalence of preterm early onset GBS infection in your unit/network?

12.5 Born in the right place

Aim: All singleton infants less than 32 weeks of gestation, multiples less than 34 weeks of gestation and infants where the estimated fetal weight is less than 1500g, should be born in a maternity service on the same site as a neonatal intensive care unit (NICU). In North Wales the Sub-Regional Neonatal Intensive Care Centre (SuRNICC) accepts babies ≥ 26 weeks gestation. All infants ≤ 26 should be transferred to a maternity unit with an aligned NICU. Exception reports are to be completed for all babies born under 32 weeks outside of a NICU. In North Wales, this also applies to all babies born under 26 weeks in the SuRNICC

a. What proportion of babies born in your unit/network achieved this?
b. What proportion of babies born in your unit/network required transfer after birth for gestational appropriate neonatal care?
c. How many requests for in utero transfer were declined?
    a. How often was this on account of lack of neonatal capacity?
    b. How often was this on account of maternity capacity?
    c. How often was this on account of other capacity e.g., transport

13 Appendices

Appendix 13.1

GIG CYMRU NHS WALES
Rhwydwaith Mamolaeth a Newyddenedigol Cymru
Wales Maternity and Neonatal Network

Extreme Preterm Pathway (document 1)
All Wales Standards

In October 2019 the British Association of Perinatal Medicine (BAPM) published a new framework for the perinatal management of extreme preterm birth before 27 weeks gestation. This supersedes previously published guidance by BAPM and the Nuffield Council of Bioethics (2006)[1] which were largely based on data from the original EPICure study (1995)[2,3] and preliminary data from EPICure 2. The new framework was developed by a multidisciplinary working group in the light of evolving evidence suggesting that outcomes for babies born before 27 completed weeks of gestation may be improving, and a national and international shift in the approach to their care.

The full document can be found be here:
https://hubble-live-assets.s3.amazonaws.com/bapm/attachment/file/182/Extreme_Preterm_28-11-19_FINAL.pdf

BAPM executive summary and visual risk tool:

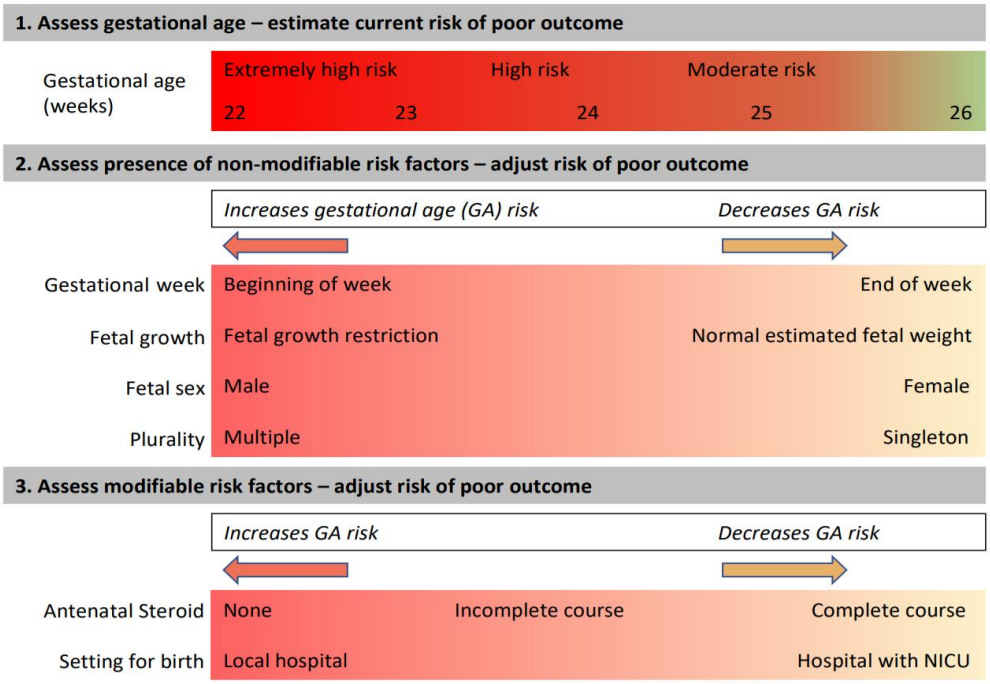
1. Management of labour, birth and the immediate neonatal period should reflect the wishes and values of the mother and her partner, informed and supported by consultation and in partnership with obstetric and neonatal professionals.

2. Whenever possible extreme preterm birth should be managed in a maternity facility co-located with a designated neonatal intensive care unit (NICU).

3. Neonatal stabilisation may be considered for babies born from 22^{+0} weeks of gestation following assessment of risk and multi-professional discussion with parents. It is not appropriate to attempt to resuscitate babies born before 22^{+0} weeks of gestation.

4. Decision making for babies born before 27 weeks of gestation should not be based on gestational age alone, but on assessment of the baby's prognosis taking into account multiple factors. Decisions should be made with input from obstetric and neonatal teams in the relevant referral centre if transfer is being contemplated.

5. Risk assessment should be performed with the aim of stratifying the risk of a poor outcome into three groups: extremely high risk, high risk, and moderate risk. The visual tool below may be used to guide the risk assessment and stratification.



6. For foetuses/babies at extremely high risk, palliative (comfort focused) care would be the usual management.

7. For foetuses/babies at high risk of poor outcome, the decision to provide either active (survival focused) management or palliative care should be based primarily on the wishes of the parents.

8. For foetuses/babies at moderate risk, active management should be planned.

9. If life-sustaining treatment for the baby is anticipated, pregnancy and delivery should be managed with the aim of optimising the baby's condition at birth and subsequently.

10. Conversations with parents should be clearly documented and care taken to ensure that the agreed management plan is communicated between professionals and staff shifts.

11. Decisions and management should be regularly reviewed before and after birth in conjunction with the parents; plans may be reconsidered if the risk for the foetus/baby changes, or if parental wishes change.

Standards:

The aim of introducing standards in relation to the new framework is to support implementation of the framework and provision of equitable perinatal care for all extreme preterm births across Wales.

1. A multi-disciplinary team discussion involving at least one senior obstetrician and neonatologist/paediatrician should be held for all foetuses at risk of extreme preterm delivery between 22^{+0} and 26^{+6} weeks. For mothers presenting to a maternity facility without a co-located designated neonatal intensive care unit (NICU) advice may be sought from obstetric and/or neonatal professionals from the usual regional maternity centre with a co-located NICU.

2. The aim of the multi-disciplinary discussion is to jointly assess the risk of a poor outcome and stratify the perceived risk as either extremely high, high or moderate as per the BAPM framework. In addition to the non-modifiable risk factors highlighted in the BAPM visual risk tool, premature rupture of membranes with subsequent development of reduced or absent amniotic liquor volume should be considered as an important risk factor. The proposed risk category including the reasoning for such should be clearly documented.

3. A senior obstetrician and neonatologist/paediatrician should jointly counsel expectant parents regarding the risk to the foetus and proposed management in view of the perceived risk. The involvement of a tertiary neonatologist in parental counselling discussions should be considered for mothers presenting to maternity facilities without a co-located NICU.
   a. If possible, all discussions should take place with both parents (or alternative support person) present.
   b. The wishes and values of the parents should be sought and clearly documented.
   c. If time allows, at least two separate discussions should take place.

4. If palliative (comfort focused) care at delivery is agreed upon, the perinatal management should be aimed at optimising the comfort of the baby as well as offering support and choices to the parents.

   a. All discussions with parents regarding the delivery of palliative care should be carried out by senior staff.
   b. Measures aim at optimising the condition of the baby at birth such as maternal steroids and Magnesium Sulphate are not indicated.
   c. The neonatal team may be involved in the delivery of perinatal palliative care if the parents and obstetric staff feel this may be helpful.
   d. Parents should be made aware that their baby may be born alive and may live for a period of time.
   e. The parents' wishes regarding the care of their baby should be explored. This may include:

i. Holding the baby
ii. Memory making
iii. Blessing/Baptism
iv. An unofficial 'certificate of birth' for babies who were born dead before 24 weeks' gestation may be offered to parents. When a baby is born dead before 24 weeks' gestation (the current legal age of viability), the baby's birth cannot be legally registered or certified which some parents may find very distressing. A selection of templates of unofficial 'birth certificates' are freely available for download on the Sands website (https://shop-sands.org.uk/en/products/bereavement-support).
v. Pharmacological management of symptoms if required.

5. If survival focused management at delivery is agreed upon, the perinatal management should be aimed at optimising modifiable risk factors. This includes:
    a. Arrangement of in-utero transfer to a maternity facility with NICU if deemed safe by the obstetric team.
    b. Administration of maternal steroids without delay.
    c. Administration of maternal Magnesium Sulphate.
    d. Consideration of optimum mode of delivery.
    e. Optimisation of delivery room management:
        i. Experienced neonatal team present at delivery
        ii. Aim delivery room temperature above 25°C
        iii. Stabilisation as per NLS guidance.

6. Any agreed upon management plan needs to be reviewed regularly and may need to be revised if the initially proposed risk to the foetus changes and/or parents and professionals agree on an alternative management plan.

References:

1 Critical care decisions in fetal and neonatal medicine: ethical issues. Nuffield Council on Bioethics 2006 www.nuffieldbioethics.org

2 Costeloe K, Hennessy E, Gibson AT, Marlow N, Wilkinson AR, The EPICure study: Outcome to discharge from hospital for infants at the threshold of viability. Pediatrics 2000;106:659-671.

3 Marlow N, Wolke D, Bracewell M, Samara M, for the EPICure Study Group. Neurologic and developmental disability at 6 years of age after extremely preterm birth. N Engl J Med 2005; 352:9-19.

Appendix 13.2

GIG CYMRU NHS WALES | Rhwydwaith Mamolaeth a Newyddenedigol Cymru Wales Maternity and Neonatal Network

Extreme Preterm Pathway (document 2)

Perinatal Management & Parental Discussion Proforma

(see supporting information before completing this proforma)

Date:	**Time:**

Previous counselling: yes / no

Mother's name:	**Gestational age today:** _____ weeks __ days
Hospital number:	**Based on LMP / ultrasound at:** _____ weeks
NHS number:	**Single / Multiple pregnancy**

Maternal History:

Maternal past medical history:	
Maternal drug history:	
Antenatal scans:	

Sex *(if known):* Male / Female

Estimated weight / centile:

Additional risk factors to consider	
Restricted growth:	Yes / No
Prolonged pre-labour rupture of membranes:	Yes / No
Clinical evidence of chorioamnionitis:	Yes / No
Antenatal steroids:	complete course / incomplete course / none
Setting for birth:	Hospital with NICU / transfer pending / local hospital

Decision making around management of delivery, following risk assessment and consultation with parents

Extremely High Risk	22+0 to 22+6 with unfavourable risk factors Some 23+0 to 23+6 with unfavourable risk factors Rarely babies >24 weeks (severe FGR, PPROM)	**PALLIATIVE CARE***	
High Risk	22 + 0 to 23+6 weeks with favourable risk factors	***Informed by parental wishes –*** **PALLIATIVE CARE***	
High Risk	22 + 0 to 23+6 weeks with favourable risk factors	***Informed by parental wishes –*** **ACTIVE CARE**	
Moderate risk	Most babies > 24 weeks Some babies 23+0 to 23+6 with favourable risk features	**ACTIVE CARE**	

- ** Palliative care – see appropriate guideline for advice*

Documentation of Parental wishes

Obstetric care:	
Neonatal care:	

Obstetric counselling:

Antenatal steroids:	
Tocolysis:	
Magnesium sulphate:	
Transfer to centre co-located with NICU:	
Mode of delivery:	
Other discussion:	

Obstetric counselling led by: *(sign, print, designation, GMC)* _____

Date: _____ **Time:** _____

Neonatal counselling: *Highlight salient points of discussion*

(resuscitation / stabilisation; respiratory; neurological; gastrointestinal / feeding; metabolic; infection; outcome and prognosis)

Neonatal counselling led by: *(sign, print, designation, GMC*) _____

Discussion with tertiary referral unit *(if appropriate):*

Who:	
Accept referral:	Yes / No
Recommendations:	

Further episode of discussion with mother and partner:

Date / time:	
Mothers name:	
Birth partner / family members present:	
Clinical team present:	
Summary of further discussions:	
Conclusions and management plan:	

Signature: _____

Name / GMC: _____

Further episode of discussion with mother and partner:

Date / time:	
Mothers name:	
Birth partner / family members present:	
Clinical team present:	
Summary of further discussions:	
Conclusions and management plan:	

Signature: _____

Name / GMC: _____

Supporting information and guidance for completion of document.

Management of labour, birth and immediate neonatal period should reflect the wishes and values of the mother and her partner, informed and supported by consultation and in partnership with obstetric, midwifery and neonatal professionals.

Decision making for babies born before 27 weeks of gestation should not be based on gestational age alone, but on assessment of the babies' prognosis taking into account multiple factors (page 1). Neonatal stabilisation may be considered for babies born from 22+0 weeks of gestation.

Risk assessment should be performed with the aim of stratifying the risk of outcome into 3 groups: extremely high risk, high risk and moderate risk. Examples of risk groups are given in the table.

Decisions should be made with input from obstetric and neonatal teams in the relevant tertiary centre (if possible), if transfer is being contemplated.

It is not appropriate to attempt to resuscitate babies born before 22+0 weeks of gestation.

If life sustaining treatment for the baby is anticipated, pregnancy and delivery should be managed with the aim of optimising the baby's condition at birth.

This proforma records the situation at a particular point in time in order to determine the best course of action for the mother and fetus/baby.

Decisions relate to that particular time-point and are not binding at a different time or place.

Subsequent decisions and plans should always be reviewed in the light of current clinical circumstances. Awareness of previous decisions about the same case may be useful and help further decision making. Plans may be reconsidered if the risk for the fetus/baby changes, or if parental wishes change.

Antenatal assessments and judgements are not binding on the professionals attending the infant after delivery. The infant may be born in much poorer condition than expected, and it may be appropriate to reconsider the planned provision of active management and move to palliative care.

Not all aspects in this form need to be completed. It is advisable to complete the document after counselling the parents.

Reference:

1. BAPM Framework for Practice, October 2019
2. Mactier, Bates etal, BAPM Working Group. Perinatal management of extreme preterm birth before 27 weeks of gestation: a framework for practice. *Arch Dis Child Fetal Neonatal Ed* May 2020 Vol 105 No 3 F232-9.

Appendix 13.3

Rhwydwaith Mamolaeth a Newyddenedigol Cymru
Wales Maternity and Neonatal Network

Extreme Preterm Pathway (document 3)

Antenatal Management Proforma

Date: Time: Previous counselling: yes / no

Addressograph
Mother's name:
Hospital number:
NHS number:
D.O.B:

Current Gestational age: ____ weeks ___ days, based on LMP/USScan at ___weeks

Gravida ___ Parity ___

Singleton / Multiple pregnancy (and chorionicity):

Presentation:

Previous Obstetric History:

Reason for admission (and how diagnosed):

- Threatened/established preterm labour –
  Clinical/Biomarker test (fFN /actim partus) positive/cervical length scan
  QUiPP App % risk score of delivery -
- Membranes intact /ruptured – Colour of liquor
  Speculum / ROM-kit (IGFBP-1 or PAMG-1) / other/ inconclusive
  If PPROM, gestation/duration of ruptured membranes-
- Other (e.g PlGF to rule out pre-eclampsia) -

Recent ultrasound scan (if any)

- Date of scan-
- Estimated fetal weight, centile, and fetal sex -

Maternal /fetal risk factors:

- Maternal infection/chorioamnionitis
- GBS positive
- Maternal diabetes / hypertension
- Antepartum haemorrhage
- High risk Down's screening/inherited chromosomal disorder
- Abnormal anomaly scan
- Fetal growth restriction and/or abnormal dopplers
- Congenital infection
- Other -

Any Obstetric interventions done/planned:

- Maternal corticosteroids x 2 doses – full / partial / repeat ; date of last steroid-
- Magnesium sulfate – bolus & maintenance/ bolus only
- Prophylactic antibiotics
- Cervical cerclage
- Vaginal progesterone
- Tocolysis
- In-utero transfer
- Induction of labour / Caesarean section
- Other -

Current Maternal Medication:

Fetal monitoring:

- No monitoring of FH
- Intermittent auscultation
- CTG

Level of management agreed with parents and neonatologist:

- Active (survival focussed)

- Palliative (comfort focussed)
  Parental Counselling/Information leaflet given: Yes / No

Agreed Intrapartum management:

- Mode of delivery
- Intrapartum fetal monitoring
- Analgesia in labour
- Delayed cord clamping
- Attendance of neonatal team / Resuscitation
- Other-

Suggested postnatal management/ investigations (please circle as appropriate):

- Postnatal counselling
- Placental histology
- Cytogenetics
- Infection screen (blood and/or swabs)
- Blood tests –
- Post-mortem
- Other-

Obstetric counselling led by (sign, print, designation, GMC)	
Clinical team present:	
Discussions with Tertiary Unit (if appropriate)	
Further episode of discussion with mother and partner: -	Date / time:
Birth partner/family members present:	Clinical team present:
Summary of further discussions:	
Conclusions and management plan:	

Signature:	Name / GMC
Further episode of discussion with mother and partner: -	Date / time:
Birth partner/ family members present:	
Clinical team present:	Summary of further discussions:
Name / GMC	Signature:

References:

1) Antenatal Optimisation for Preterm Infants less than 34 weeks: A Quality Improvement Toolkit. October 2020
2) BAPM Framework for Practice October 2019
3) NICE Guideline NG 25: Preterm Labour and Birth. Nov 2015(Updated 2nd August 2019)
4) Perinatal Management of Pregnant Women at the Threshold of Infant Viability (The Obstetric Perspective), RCOG Scientific Impact Paper No. 41, February 2014

Appendix 13.4

GIG CYMRU NHS WALES
Rhwydwaith Mamolaeth a Newyddenedigol Cymru
Wales Maternity and Neonatal Network

Extreme Preterm Pathway (document 4)
Comfort Care Pathway

Background

Palliative care must be in the best interests of the baby, agreed where there is extremely high risk of a poor outcome for the baby and a decision made not to offer a survival-focussed management. A detailed documented consultation with parents involving senior clinical staff from obstetric, midwifery and as appropriate neonatal team is paramount.

Palliative care involves transitioning a baby from life-saving interventions to providing ''comfort care'' which consists of providing warmth, pain medication and most importantly intimate contact between parents and their baby. The focus is on the family's quality of life during their time spent together.

This care should be delivered in the most appropriate location for the family (which is not necessarily a neonatal unit) and should not necessitate in utero transfer. The obstetric/maternity team in a dedicated bereavement room should deliver care (where available). There should be an emphasis on family-centred care with an opportunity for parents to create positive memories of their baby.

Intrapartum fetal monitoring is not recommended. Parents should be informed that their baby may show signs of life after birth; visible heartbeat, gasping, movement of limbs. Parents should also be advised of what their baby will look like (extreme preterm information leaflet should be given to parents).

Baby and family should be treated with respect, dignity and privacy. Parents should be offered the opportunity to hold and spend as much time as they wish with their baby in a quiet and private location.

On average babies born before 24 weeks of gestation who receive comfort care in the delivery room live for approximately 60 minutes (range from a few minutes to several hours)

Pharmacological symptom management may be considered.

After the baby has died a parent-led bereavement care plan should be put in place for the family, including communicating with parents and creating memories.

Palliative care

Palliative care centres around the provision of dignity and respect for the baby and family. Support for the parents and extended family initially focuses on interventions for anticipatory grief and ensuring appropriate family bereavement. Parents must feel in control of the events before and after the death.

Aspect	Considerations
Planning care	• Develop an agreed care plan with the family, including as appropriate to the circumstances: o Post-delivery Management o After death care • Discuss the possibility that the baby may live for many hours • Review and amend the plan at frequent intervals to ensure the goals of care are being met • Involve palliative care specialists as appropriate/required • Document decisions in detail to ensure a clear and unambiguous understanding by the health care team and the family
Newborn care	• Handle baby gently and carefully • Provide wraps for cuddling and holding baby • Offer skin to skin contact • Offer opportunities and support the family's wishes to engage in care provision (e.g. nappy changes, bathing, cuddling/holding)
Nutrition/ hydration	• Insertion of a gastric tube for feeding is not usually recommended at extremely low gestational ages but oral feeds may be considered in some circumstances (e.g. via syringe drop) • Maintain oral hygiene and comfort (e.g. moisten lips)
Review all interventions	• Consider individual circumstances and parental wishes in timing these decisions • Prepare the family for the likely/possible clinical sequelae that may follow non-initiation of support (e.g. gasping agitation, tachypnoea, intercostal recession) interventions that increase comfort • Provide sensitive emotional support and reassurance to parents throughout the process and afterwards

Reference: Queensland Clinical Guideline: Perinatal care at the threshold of viability

Symptom management

- Always assess the need for pain management
- Consider use of established pain scales
- Avoid invasive procedures
- Administer analgesics/sedation as indicated: Welsh Palliative Care Guideline: Anticipatory Prescription access
- Select the route (buccal or enteral) of administration that is best tolerated by the baby. It is unusual to administer anything in this scenario and there is no iv access.Incorporate non-pharmacological interventions (e.g. minimal noise/light, stimuli, flexed position of arms and legs, massage)

Bereavement support

The loss of a baby is a very emotional and difficult experience for everyone who is involved. It can be difficult to know how to respond to grieving families and you might be worried about saying the wrong thing, but saying nothing at all can be worse.

Aspect	Considerations
Psychosocial	• Maintain a family centred approach to care • Advise the family that the duration of the dying process is variable • Provide an environment conducive to family interaction (e.g. room with recliners/beds, lighting that can be dimmed, outlets where music can be played, access to a kitchenette and bathroom) • Facilitate unrestricted visiting • Facilitate spiritual/religious/cultural rituals, services and support important for the family (e.g. baptism, naming ceremony) • The Spiritual Care Team (Chaplaincy Department) can meet the family, or to support the staff in pursuing and offering appropriate rituals to commemorate the baby
Memory creation	• Facilitate memory creation/gathering before and after death consistent with the family's wishes and following consent (e.g. identification tags, hand and footprints, digital photos, cot cards, hair collection) Offer options to include extended family (e.g. photographs of family group relatives/siblings to hold baby) • Offer option to take baby home if feasible
Follow-up	• Offer assistance with certification and registration of death • Provide information on burial and cremation (written or verbal) • Offer a future appointment to discuss the death with the health care team, particularly the lead health care professional • Provide contact information for psychological support (e.g. professional counselling or support groups/organisations)

	• Consider care needs for subsequent pregnancies • Staff support is essential i.e. debriefing, supervision

Reference: Queensland Clinical Guideline: Perinatal care at the threshold of viability

APPENDIX 1: CHECKLIST FOLLOWING A NEONATAL DEATH (PS: Use your local Health Board's document if available)

	TICK	COMMENTS	DATE SIGN
Parents informed of death by:			
Baby seen by parents			
Obtain consent from parents for photos and mementoes			
Photographs taken for parents, offer a family photograph.			
Contact hospital photographer			
Give parents Bereavement boxes Cot card Identity band Lock of hair Foot/hand print			
Chaplain / parents own religious advisor notified			
Has any religious/non-religious support been offered e.g. naming ceremony, blessing.			
Is death a Coroners case? YES NO (Unexpected, Unexplained) Dr Informed Coroner YES NO Safeguarding Team informed YES NO PRUDIC required YES NO			
Request for post mortem examination completed by Dr (to go to mortuary with completed notes whether hospital or coroners post mortem)			
NO CONSENT FOR PM IS REQUIRED IF CORONERS' PM Post mortem. Consent given / refused. (Not required for coroners) Contact Mortuary technician for advice if necessary			
Medical certificate of cause of death completed, **(NOT FOR CORONERS CASE)** **NB Dr must print their name above the signature and write down their GMC number**			
Discuss funeral arrangements with parents e.g. burial or cremation			
Is a cremation form needed			
Parents informed on where & when to register birth & death Inform parents that they need to phone to make an appointment at registry office Directions given			
	TICK	COMMENTS	DATE

			SIGN
Medical certificate on cause of death explained & and given to parents			
Phone Registrar's office (so that they are aware of parents coming to register death)			
If Parents wish to take Baby home (**not if coroner's case)** Discuss with mortuary technician Site Manager & Consultant informed Police aware Mortuary Ledger completed Medical certificate completed Cremation certificate completed if required Advisory letter given Death must be registered prior to leaving hospital			
Give parents the Bereavement support officer's card (if available)			
Inform family about HB Remembrance services (if available)			
Inform parents that they will have an appointment to speak to a Paediatrician at a later date			
Inform mortuary prior to taking baby to mortuary			
Label baby and transport to mortuary			
Consultant Paediatrician informed			
Community midwife informed			
Neonatal outreach team informed			
GP informed Death Advice letter in pack to be filled in by Drs.			
Inform Hospital Site manager			
Health Visitor informed			
Child health department informed to stop vaccination appointments being sent			
CARIS form			
MBRRACE Co-ordinator informed, using notification form			

Reference:

1. Queensland Clinical Guideline, Perinatal Care at threshold of Viability, September 2014, document number MN14.32-V1-R19.
2. Katrina Kelly, Together for Short Lives: Standards framework for children's palliative care v3, July 2015 and A Perinatal Pathway for Babies with Palliative Care Needs Second edition 2017.
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Appendix 13.5

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Extreme Preterm Pathway (document 5)

Parent Information Leaflet

Who is this information for?
You have been given this information because your healthcare team think that you may have your baby extremely early (prematurely). You and your family need to know what is likely to happen, for you and your baby, if this occurs. The maternity team and neonatal team (the doctors and nurses who are experts at dealing with premature babies) will talk to you about this in detail as well as giving you this information leaflet and you will have the opportunity to ask any questions that you wish.

What does this mean?
A pregnancy usually lasts for about 40 weeks. How many weeks you are along in your pregnancy (gestation) is usually worked out from an ultrasound scan at around 12 weeks (your dating scan).

Babies born before 22 weeks are so small and fragile that they do not survive. Their lungs and other organs are not ready for them to live outside the womb. Such tiny babies may show signs of life for a short time after birth but even with the very best neonatal care, they cannot survive for more than a few minutes or hours.

Babies born from 22 weeks sometimes are not strong enough to survive labour and either vaginal (natural) or caesarean birth. If they are born alive, they may be able to survive if they receive intensive medical treatment. However, some extremely premature babies sadly die despite this treatment. The earlier the baby is born, the less likely it is that they will be able to survive (please see table below for survival rates).

Babies who are born extremely early are also at increased risk of problems with health and development as they grow up. These risks get higher the more prematurely (earlier) a baby is born and are especially common in those children born before 25 weeks of gestation. Health problems may include; breathing difficulties, gut problems (including issues with feeding) and eye problems. Developmental problems may include; problems with movement, learning and behaviour. These various health and developmental issues can range from mild to very severe. You can find a more detailed description of such problems on the following page.

The doctors and midwives will talk to you about what they expect for your baby. In some situations, there are difficult decisions to be made about how to care for your baby before and after birth. The right thing to do can be different for different families. That is why it is important that you are fully informed and feel able to let the doctors and midwives know your wishes for your baby.

'Outcome'

Below is a description of what we know about the small numbers of babies born extremely prematurely in the whole of the UK, and of those who survive how many are likely to have a 'severe disability' as they grow up

Gestation:	Survival:	Severe Disability in Survivors:
22 weeks	3 in 10 babies survive 	1 in 3 babies has a severe disability 
23 weeks	4 in 10 babies survive 	1 in 4 babies has a severe disability 
24 weeks	6 in 10 babies survive 	1 in 7 babies has a severe disability 
25 weeks	7 in 10 babies survive 	1 in 7 babies has a severe disability 
26 weeks	8 in 10 babies survive 	1 in 10 babies has a severe disability 

The majority of babies grow up without severe disability. A proportion of these children without severe disability could develop other problems as they grow up which may mean, for example, that they need extra help in school or have some problems with walking or moving around. Some may have social and emotional problems. The likelihood that children have these problems is greatest the earlier they are born, and problems are most common in children born before 25 weeks of gestation.

Survival data from the Wales Neonatal Network is available in the network's annual report. These reports contain survival and outcome statistics for all babies born prematurely who were considered well enough following delivery to be admitted to a Welsh hospital. The annual reports are available by following this link: http://www.walesneonatalnetwork.wales.nhs.uk/reports-publications or, if using a search engine, search

for "Wales Neonatal Network Annual Report". These reports are written primarily for medical professionals, so if you have any questions after reading an annual report, please speak to your care team.

What does 'severe disability' mean?

Disability can mean different things to different people and can cover a wide spectrum of problems. When talking about babies who have been born extremely prematurely, the term 'severe disability' includes problems such as:

- Not being able to walk or even get around independently (this includes conditions such as severe cerebral palsy)
- Being unable to talk, or see or hear properly
- Difficulties with swallowing or feeding safely
- Having multiple health problems with frequent visits to hospital
- Needing to attend separate school for children with special educational needs
- Being unable to care for themselves or live independently as they grow up

What does this mean for your baby?

The figures above are an average for all babies born extremely prematurely in the UK, but every baby and family are different. It is impossible to predict exactly what will happen for every child. The chances for your baby depend on a number of different things. As well as how early they are born, it also matters how much your baby weighs when it is born, whether it is a boy or girl, whether it is a multiple birth and also how well you and your baby are around the time of birth. The neonatal team will be able to go into further details about how this may affect your baby, either before or after the birth as needed. If they are admitted to neonatal intensive care, there can be further unpredictable medical problems during their admission that may affect your baby's survival or 'outcome'. Your neonatal team can speak with you further about this if you wish.

What can parents do?

What is right for your baby and your family is very individual to you. Your doctors will talk with you about your situation and seek to understand what is important for you and your family. They will support and guide you and involve you in making decisions about treatment for your baby. Thinking about your hopes, your wishes, and your fears about your baby can help the team to support you in the best way possible.

What may happen with my baby?

Stillbirth: Some babies who are born this early do not survive labour and delivery. If this happens, your baby will be given to you to hold for as long as you would like. You will have the opportunity to spend as much time with them as you would like and to make memories with them. Under UK law, only babies born after 24 completed weeks of gestation can be registered as stillborn. Bereavement support and facilities will be made available to you if you wish.

Neonatal Intensive Care (NICU): You and the team may decide that starting neonatal intensive care would be best for your baby. This will mean you will need some extra treatments before your baby is born. You will be given steroids (up to two injections 12 to 24 hours apart) to help the baby's lungs and brain and magnesium (via a "drip" or injection) which also helps to protect your baby's brain. You may need to be transferred to a specialist centre, ideally before you have your baby, but there may not be time to do this safely. The team will also talk to you about the treatment that will be given to your baby immediately after birth and what may happen next depending on how your baby reacts to this treatment. They will also discuss the importance and benefits of breastmilk for babies born this early. Despite your baby being born extremely

prematurely, your body will still be able to produce breastmilk, and the midwives and neonatal team will help support you to express breastmilk if you wish.

If you and the team decide that intensive care is best for your baby, you should be offered the opportunity to be shown around the neonatal unit (if there is time for this) as it may help to see the neonatal unit and meet the people that work there before your baby is born. You can also talk to staff about expressing breast milk, as this makes such a big difference for premature babies.

Comfort Care: You and the team may decide that it will be best to provide comfort care to your baby, either because there is an extremely high risk that your baby will not survive or he/she is likely to suffer from lifelong disability even with the very best treatment. Comfort care is also known as palliative care and is special care for babies whose time is precious but short. It means providing treatments that will make their time as comfortable as possible. We will help you to be part of this care if you would like. Holding your baby close to you and talking to your baby may be very comforting.

More information about comfort care or 'palliative care' for babies is available from Together for Short Lives (further details are at the bottom of this leaflet). Please feel free to ask your healthcare team further questions about comfort care if you wish.

What if my baby doesn't come now?
If your baby does not come in the next few days, their chances may improve. Ideally, they will stay in the womb for as long as possible (depending on the health of you and your baby).

If that happens, there may be different options for you and your baby around the time of birth. That will depend on when your baby comes and on other things that affect the baby's chances of responding to treatment. If this is the case, your healthcare team will continue to speak with you about what has changed and what different options may be available depending on when your baby is likely to be born, and you will be able to discuss and revise your agreed plans accordingly.

What might my baby look like?
Babies born this early can weigh less than half a kilogram (1 small packet of sugar) and can look quite different to how we imagine a newborn baby. Their skin is shiny and thin and covered with fine hair. Sometimes babies can be quite bruised from the birth. If the baby has died before being born, they will usually be still. Occasionally, where babies have died very close to being born, they may make brief reflex movements that disappear very quickly.

If your baby is born alive, they may take a breath and make a small cry, or they may not breathe and be quiet. Their eyes may not be able to open yet. The baby's colour is often purple or blue to start with.

Can I see my baby?
Yes. If your baby has been stillborn you can hold and cuddle them for as long as you and your partner wish, and you will have all the time you need to make memories with your baby. We will respect and support all parents' wishes around this difficult time.

If your baby is being admitted to neonatal intensive care, then there may be a delay as the neonatal team are caring for your baby immediately after delivery and are ensuring they are able to safely move your baby to intensive care. Before they are taken to neonatal intensive care, you may have the opportunity to briefly

see and touch your baby and to take photos if you wish, depending on how well they are following birth. Unfortunately, because of some of the medical equipment your baby may need to help keep them well following birth, you may not be able to hold them just yet. Once you have recovered from the birth, you and your partner will be able to visit them on the neonatal unit as much as you wish.

Transfer to a different hospital

When you have decided with the obstetric and neonatal care teams that starting neonatal intensive care would be best for your baby, research shows that for babies born before 27 weeks of gestation it is best, whenever possible, to be born in a specialist maternity unit with a specialist Neonatal Intensive Care Unit (sometimes called a 'Level 3 NICU'). If a baby born before 27 weeks of gestation is born in a maternity unit (or at home) where there is not a specialist NICU, then we know that the baby will generally do better if moved to a specialist NICU after birth.

If your hospital does not have a specialist NICU, this may mean that you will be offered transfer to one of these centres before your baby is born. We understand that this can be a very anxious time and that you may be moved quite some distance from home. It can be very difficult to predict which mothers will deliver early and so some mothers may be moved to another hospital and their baby not born early.

It may also be the case that you are considered too unwell or too far on in labour to be safely moved to another hospital before your baby is born. When it is not possible to transfer you before the baby has been born, your baby may be transferred by a specialist Neonatal Transport Team after the birth. Your own health needs may mean you will be unable to travel immediately with your baby, but your local maternity team will do everything they can to move you to the same unit as your baby as soon as it is safe to do so. If your baby does need to be transferred to another hospital after delivery, the specialist neonatal transfer team will come and speak with you, and you will be able to see your baby before the transfer in most circumstances.

We appreciate that moving to another hospital can be distressing for you and your family, especially if you are separated from your baby for a while. We will talk to you about this in more detail if it is decided that this is the best option for your family.

What if I have more questions?

This information has been provided to you as part of the conversation that your healthcare team will have with you about your baby. If you have any other questions do make sure you ask your doctors, midwives and nurses to answer them, so you have all the information you need about your situation and the options available to you. Your healthcare team want to work with you make the best decision for your baby and for your family.

If after your discussion with your healthcare team you or your family have further questions, please feel free to request a follow-up discussion. Many families find this helpful. You may find it beneficial to write down your questions before the discussion to ensure all of your questions are answered.

Further sources of information and support:

Bliss - Premature and sick baby charity
http://www.bliss.org.uk/
Phone: 020 7378 1122
E mail: ask@bliss.org.uk

Together for Short Lives - Charity for babies and children with life-limiting conditions
https://www.togetherforshortlives.org.uk/
Helpline: 0808 8088 100

Sands - Stillbirth and neonatal death charity
https://www.uk-sands.org/
Helpline: 0808 1643 332
Email: helpline@sands.org.uk

Tommy's - fund research into miscarriage, stillbirth and premature birth, and provide pregnancy health information to parents.
https://www.tommys.org
Helpline: 0800 0147 800
Email: midwife@tommys.org

Adapted from British Association of Perinatal Medicine (BAPM) Perinatal Management of Extreme Preterm Birth before 27 weeks of gestation - A Framework for Practice. October 2019.

Appendix 13.6

GIG CYMRU NHS WALES
Rhwydwaith Mamolaeth a Newyddenedigol Cymru
Wales Maternity and Neonatal Network

Extreme Preterm Pathway
Summary and Acknowledgements

The documents included in this pathway are based on the British Association of Perinatal Medicine (BAPM) framework for practice "Perinatal Management of Extreme Preterm birth before 27 weeks Gestation" published October 2019. They have been separated into 6 guidelines which are designed for multidisciplinary use potentially across several sites within the Wales network. The documents can be applied as one combined pathway or as stand-alone items as required. The emphasis is on multi-professional input and continued communication and dialogue between families and those caring for them.

On behalf of the Wales maternity and neonatal network, the following individuals formed the task and finish group which was responsible for producing and editing this pathway.

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Parent Representatives
Gareth A. Evans, programme support officer (NHS Wales Health Collaborative)

Appendix 13. 7

ADDRESSOGRAPH

ALL WALES IN- UTERO TRANSFER COMMUNICATION FORM

Gravida Para EDD

Current Gestation ..... Single or Multiple pregnancy .....

Anomalies ? Yes..... No .....Details.....

USS: Most recent estimated fetal weight .....

Blood Group .....Rh..... Antibodies.....

Medication .....

Reason for transfer (Select)

1. Preterm labour (neonatal gestational thresholds) □	**2. Neonatal indication (requiring specialist neonatal/paediatric care) □**
3. Maternal indication (requiring specialist care) □	**4. Maternity bed/ neonatal cot capacity/ staffing □**
Obstetric history.....	Medical history.....

Has mother received health care treatments (inc IVF), in other countries outside Wales during last year? Y/N

If yes, details of treatment..... Country.....

Had any infections/positive screening results during pregnancy? Y/N

If yes, please specify.....

Safeguarding issues Y/N Details .....

PRE TERM BIRTH PREDICTION

SROM Y/N Date ..... Time	Pre-Term Labour Test: Pos/ Neg fetal fibronectin/Actim partus
QUIPP app risk score:	Transvaginal scan cervical length:
Speculum Examination: Date .....Time ..... Findings	

GBS Status: POSITIVE□ NEGATIVE□ UNKNOWN□ OUTSTANDING□

ANTENATAL OPTIMISATION BUNDLE CHECKLIST:

S: Steroids	1st dose	☐	Date given.....	Time .....
	2nd dose	☐	Date given.....	Time .....
T: Transfer needed		☐	Date of IUT	Time .....
A: Antibiotics GBS		☐	Date given.....	Time .....
M: Mg	Loading	☐	Date given.....	Time .....
	Infusion	☐	Date started.....	Time .....
P: Parent discussion		☐	Date seen.....	Time .....
E: Evaluate for tocolysis		☐	Date given.....	Time .....
D: Delivery plan made		☐	Monitoring, mode of birth, resuscitation plan	

** MAGNESIUM infusion should be discontinued for transfer

Referring hospital	Transfer to
Consultant Obstetrician	Consultant Obstetrician
Obstetric Registrar:	Obstetric registrar informed
	Labour Ward Coordinator informed
	Neonatal Unit informed
	NB: All must be informed prior to transfer

Person completing form:

Name: Designation: Signature:

GMC / NMC: Date: Time:

Appendix 13.8

PERIPrem Cymru Baby Passport

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Right Place of Birth

(babies born before 27 weeks' gestation - 28 weeks for multiple births - or who may weigh less than 800 grammes)

I am at the right hospital in case my baby(ies) needs to be born early.

Please talk to your local team about the model of care in Wales.

In Progress Complete

Antenatal Steroids

(babies born before 34 weeks' gestation)

I have received a full course of steroids to help prepare my baby(ies) for being born early.

In Progress Complete

Antenatal Magnesium Sulphate

(babies born before 30 weeks' gestation)

I have received magnesium sulphate to support the brain development of my baby(ies).

In Progress Complete

Early Breast Milk

(babies born before 34 weeks' gestation)

I have received information about the benefits of early breast milk and have been shown hand expressing/breast pump techniques to help me try to make early breast milk for my baby(ies) before or within an hour of them being born.

In Progress Complete

Antibiotics

(babies born before 34 weeks' gestation where mum was in established labour)

I have received antibiotics to reduce the chance of my baby developing an infection due to Group B Streptococcus.

In Progress Complete

PERIPrem Baby Passport

Llywodraeth Cymru
Welsh Government

Optimal Cord Management

(babies born before 34 weeks' gestation)

After my baby(ies) is born, whenever possible, the perinatal team will support them to receive extra blood from the placenta for at least a minute before the umbilical cord is clamped.

In Progress Complete

Thermal Care

(all babies)

After my baby(ies) is born, the perinatal team will aim to maintain their temperature between 36.5 and 37.5oC. They will also help me to hold my baby skin-to-skin as soon as it is safe to do so.

In Progress Complete

Respiratory Management

(babies born before 34 weeks' gestation who may need it)

If they need a tube and ventilator machine to help them breathe, the neonatal team will protect the lungs of my baby(ies) by using a special ventilator setting.

In Progress Complete

Caffeine

(all babies born before 30 weeks' gestation and some babies born before 34 weeks or who weigh less than 1,500g)

My baby(ies) has been given caffeine to protect their brain and help their breathing.

In Progress Complete

Probiotics

(babies born before 32 weeks' gestation or who weigh less than 1,500g)

My baby(ies) has been given probiotic medicine containing friendly bacteria on their first day of life to help protect their gut.

In Progress Complete

Appendix 13.9

Early Maternal Breast Milk

Evidence shows that for premature babies, their mother's* fresh breast milk is the most important and effective nutrition that is available.

Your breast milk has a vital role in protecting your premature baby's gut from necrotising enterocolitis, a serious and sadly, in some cases, life threatening gut condition.
It also helps their brain, immune system, eyes and lungs. For premature babies, breast milk is associated with improved development as the baby grows up (development includes skills like walking, coordination, speech).

Every drop counts

Each millilitre of their mother's breast milk has a positive influence on outcomes for premature babies.

All babies, no matter how early or unwell, can receive their mother's colostrum (special early breast milk) into their mouths.

Your breast milk is specifically designed for your baby in terms of nutrition, optimum gut health and immunity.

*The words mother and mothers have been used throughout this leaflet as this is the way that the majority of those who are pregnant and having a baby will identify. For the purposes of this leaflet, this term includes girls. It also includes people whose gender identity does not correspond with their birth sex or who may have a non-binary identity. (nmc.org.uk: standards-of-proficiency-for-midwives.pdf)

Providing breast milk for your baby

If your baby is born prematurely you will be encouraged to express milk for them very soon after birth.

Whilst this can be overwhelming and a lot for you to process, the midwives, nurses and feeding specialists will be on hand to talk to you and help you with expressing, storing and delivering your breast milk to your baby. This leaflet is designed to share some of the science behind the benefits of breast milk for preterm babies.

When can I start expressing breast milk for my baby?

Although you may give birth early, your body will still be able to make breast milk, but your breasts will need the stimulation of regular expressing to start and maintain breast milk production.

Expressing before your baby is born

You can start expressing breast milk for your baby even before they are born. You must discuss this with your doctor or midwife before you start as **antenatal expressing should only be done once it is certain that you will give birth to your baby in the next few hours.**

You can discuss this with the obstetric and midwifery team to support your decision.

- Antenatal expressing can be done by hand or by pump. Expressing encourages your breasts to have milk available at birth. This would mean your breast milk can be one of the first (and most important) treatments your baby receives.

Expressing after your baby is born

- Evidence shows that if you can **express within the first 1 – 2 hours after giving birth**, your milk volumes will be over double by 7 days (compared to if you wait until later than 2 hours after giving birth), and this difference continues until at least 4 weeks.

Frequency of expressing:

- When it is possible having as much skin to skin contact with your baby will help with milk production.
- Aim to express **8 to 10 times in every 24 hours**; Staff can help with both hand expressing and using the pump.
- **Night time expressing** is important because that is when the hormone receptors are most ready to stimulate milk production. Although challenging it will help with establishing your supply. You may need to set an alarm as expressing in the night is important to help stimulate milk production.
- It may seem frustrating when very little milk comes out initially, but this stimulation will be important to get breast milk production established. **Every drop of breast milk counts and gives your baby important nutrients.**

Increasing breast milk supply:

Sometimes, despite regular expressing, your milk supply may start to fall. Feel free to talk to us about this, but there are also things we recommended you do to help increase your breast milk supply:

- Increasing the amount of contact and skin to skin you have with your baby (Staff will support you with this).
- Expressing near your baby, thinking about your baby, and looking at photos of your baby while you express.
- Exchanging a muslin cloth or item of clothing with your baby that has been near you. They will be comforted by your smell and you can touch and smell something that your baby has been close to when you are expressing.
- Looking after yourself by staying hydrated, eating well and getting rest when you can.
- Increasing the frequency of expressing attempts: try hand expressing and using the pump.
- Checking you have a good fit with the pump. There are different size shields available and you can ask one of the staff to help you check you have the right one.

Donor breast milk

Your fresh breast milk is the most important nutrient to give to protect premature babies. Where possible, we avoid giving formula for premature or very low birth weight as it can increase the risk of a very serious gut complication (Necrotising EnteroColitis (NEC)), as well as eye and lung problems. We will do everything we can to support you to produce your own breast milk to give to your baby, but when necessary, for example while your milk volume is increasing, with your agreement we will offer Donor Breast Milk for all babies <32 weeks gestation or under 1.5kg. Donor Breast Milk is a highly regulated, pasteurised product obtained from a breast milk bank.

If you require further support with feeding please ask your midwife or baby's nurse to contact your local Infant Feeding Specialists.

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Appendix 13.10

Pre-hospital management of babies born extremely preterm: A Framework for Practice.

Assessment

- Prioritise maternal health: Is the mother stable?
- If possible, establish gestation to determine pathway.

Up to and including 21+6 weeks' gestation: Comfort focused care

Support parents to provide comfort care and ease their emotional distress

- Encourage parents to provide comfort for their baby if they feel able to
- Where they do not feel able ensure a crew member provides care
- Reassure that occasional gasping or reflex movements of limbs do not indicate distress
- Help parents to give close comfort and cuddling to keep baby warm and secure
  - Skin to skin contact where possible. Plastic bag wrapping is not appropriate
- Facilitate memory making for parents prior to and during conveyance

Destination

- Prioritise health of the mother

From 22+0 weeks' gestation, or if gestation is unclear: Survival focused care

1. Optimise ambient temperature

↓ Baby will get cold

2. Defer cord clamping

↓ 60 seconds

3. Maintain baby's heat

↓ Place feet-first in a polythene bag up to the neck immediately after birth
Do not dry beforehand

↓ Hat and warm blanket over polythene bag
Place swaddled baby on a heated mattress if available

4. Maintain airway/breathing

↓ Neutral position, gentle stimulation
Airway/breathing support
5 gentle inflation breaths, then ventilation breaths – 30/minute

↓ Preterm face mask, room air
Increasing heart rate best indicator of lung inflation

↓ Do not unwrap baby to reassess

5. Chest compression

↓ Not indicated below 24 weeks' gestation

6. Consider reorientation of care

↓ Where absent heart rate despite airway support, and destination not imminent
If in doubt, continue ventilation breaths until arrival

Destination

- Keep mother and baby together if possible
- Priorities are health of the mother and neonatal expertise for the baby
- Labour ward generally preferred over Accident and Emergency department
- Make sure destination aware of imminent arrival and circumstances.

Communication

Ensure empathetic and honest communication

British Association of Perinatal Medicine

COLLEGE OF paramedics

Royal College of Midwives

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