Aneurin Bevan Health Board

Labour Ward Guidelines

N.B. Staff should be discouraged from printing this document. This is to avoid the risk of out of date printed versions of the document. The Intranet should be referred to for the current version of the document.
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1 Executive Summary

This document should act as guidelines for the management of all patients in labour. The views expressed in these guidelines are evidence based from Royal College of Obstetrics and Gynecology, NICE and MOET guidelines and reflect professional opinion. They are designed to support safe and effective practice.

1.1 Scope of guideline

This guideline applies to all clinicians working within maternity services.

1.2 Essential Implementation Criteria

Auditable standards are stated where appropriate.

2 Aims

To provide support for clinical decision making.

3 Responsibilities

The Maternity Management team.

4 Training

Staff are expected to access appropriate training where provided. Training needs will be identified through appraisal and clinical supervision.

5 Monitoring and Effectiveness

Local service Improvement Plan will guide monitoring and effectiveness.

This policy has undergone an equality impact assessment screening process using the toolkit designed by the NHS Centre Equality & Human Rights. Details of the screening process for this policy are available from the policy owner.
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7 Diagnosis and Management of Labour:

7.1 Diagnosis of Labour

A positive diagnosis of labour should be made as soon as possible following admission to the Labour Ward by an abdominal palpation and vaginal examination. A woman is in labour when the cervix is more than 4cm dilated, fully effaced and her contractions are regular (4-5/10 mins lasting for >30secs).

7.2 Nutrition in Labour

- Offer water or isotonic drinks to sip during labour.
- Offer light diet unless they have received opioids
- Consider Ranitidine 150mg tds for those who receive opioids

7.3 Hygiene in Labour

Use tap water for cleaning prior to vaginal examination
Single use non-sterile gloves are appropriate

7.4 Pain relief in Labour

Acupuncture, acupressure and hypnosis is not offered routinely, but should not be prevented if the woman wishes
Transcutaneous electrical nerve stimulation (TENS) should not be offered in established labour
Entonox (50:50 N2O and O2) should be available
Pethidine, Diamorphine and other opioids should be available and administered with antiemetic
Epidural analgesia should be offered as per women’s wishes including the latent first stage if in severe pain
Intravenous access should be secured prior to regional analgesia
While sitting epidural, ENSURE continuous fetal heart monitoring with use of fetal scalp electrode

7.5 First Stage of Labour

Latent phase- painful contractions, cervical effacement and dilatation up to 4cm
Established first stage- regular painful contractions 4-5 in 10 minutes and cervical dilatation from 4cms

7.6 Progress of Labour

The most accurate method of assessing progress in labour is by assessing the rate of cervical dilatation and descent of the presenting part.
Partogram to be commenced at 4cm of dilatation
Contractions should be 4-5 in 10 minutes lasting for more than 30secs
Cervical dilatation of 0.5cm per hour is considered adequate progress in labour
Routine observations- 4 hourly temperature, blood pressure, urine analysis and
hourly pulse rate. (Changes as per clinical needs)
Vaginal examination to be offered every four hours to assess progress of labour, provided contractions are regular
Continuous CTG monitoring for all obstetric led care patients
Any deviation from the above plan should be discussed with Registrar

7.7 Second stage of Labour

Regular observations- hourly blood pressure, maternal pulse rate and fetal heart rate every 15 minutes, four hourly temperatures
Regularly check and document frequency of bladder emptying
Assess progress hourly by vaginal examination
**Passive stage**- allow one hour for head descent in the presence of regional anaesthesia or absence of involuntary expulsive contractions

**Active stage**-
Primiparous women:
Allow 2 hours of active second stage. If baby not delivered, inform duty registrar for further management.
Oxytocin should be considered if contractions inadequate with regional analgesia
Maximum active second stage can last 3 hours in a primiparous women

Multiparous women:
Allow one hour of active second stage. If baby not delivered, inform duty registrar for further management.
Maximum active second stage can last 2 hours in multiparous women

7.8 Third Stage of Labour

Average length is 30 minutes with active management and 60 minutes with physiological management

7.9 Fetal Heart Monitoring in First Stage of labour

Continuous EFM is recommended when:
- Meconium stained liquor
- Obstetric led care women
- Women who have exited the low risk pathway

7.10 Performing Electronic Fetal Monitoring (EFM))

- *The date and time clock on the EFM machine should be correctly set, ensure machine is set to 1cm/hour.*
- *The cardiotocograph label should be used to record mother’s name, date of birth and hospital number, maternal pulse rate, reason for EFM, date and time of trace commenced, signature of midwife.*
- *Any antenatal/intrapartum events that may affect the FH rate should be noted contemporaneously on the CTG and in the maternal notes, signed*
and the date and time noted (VE’s, FBS sampling, siting of an epidural).
• If asked to review CTG, use CTG stickers for classification and document clearly with plan of action in maternal notes

Fetal heart traces should be categorised into normal, suspicious and pathological according to categorisation criteria.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DEFINITION</th>
</tr>
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<tr>
<td>NORMAL</td>
<td>All four features are classified as reassuring</td>
</tr>
<tr>
<td>SUSPICIOUS</td>
<td>One feature classified as non reassuring and the remainder of the features are reassuring</td>
</tr>
<tr>
<td>PATHOLOGICAL</td>
<td>Two or more non reassuring features or one or more classified as abnormal</td>
</tr>
</tbody>
</table>

### Categorisation of Fetal Heart Rate

<table>
<thead>
<tr>
<th>Feature</th>
<th>Baseline (bpm)</th>
<th>Variability (bpm)</th>
<th>Decelerations</th>
<th>Accelerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reassuring</td>
<td>110-160</td>
<td>&gt;5</td>
<td>none</td>
<td>present</td>
</tr>
<tr>
<td>Non-reassuring</td>
<td>100-109</td>
<td>&lt;5 for 40-90 min</td>
<td>Typical variable decelerations with over 50% contractions for over 90 min</td>
<td>The absence of accelerations with an otherwise normal cardiotocograph is of uncertain significance</td>
</tr>
<tr>
<td></td>
<td>161-180</td>
<td></td>
<td>Single prolonged deceleration for up to 3 mins</td>
<td></td>
</tr>
<tr>
<td>Pathological</td>
<td>&lt;100, &gt;180 Sinusoidal pattern &gt;10 min</td>
<td>&lt;5 for more than 90 min</td>
<td>Either atypical variable decelerations with over 50% of contractions or Late decelerations, both for over 30mins Single prolonged deceleration for more than 3 mins</td>
<td></td>
</tr>
</tbody>
</table>
7.11 Management of suspicious CTG:

<table>
<thead>
<tr>
<th>SUSPICIOUS category</th>
<th>Use conservative measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>PATHOLOGICAL category</td>
<td>Fetal blood sampling where appropriate and feasible. If fetal blood sampling not possible or appropriate then expedite delivery.</td>
</tr>
</tbody>
</table>

7.12 Fetal Blood Sampling

During sampling maintain left lateral tilt
Contraindications to fetal blood sampling include:

- Maternal infection (HIV, hepatitis, herpes virus)
- Fetal blood disorders (haemophilia, fetal thrombocytopenia)
- Prematurity (<34?36 weeks)
- Where there is clear evidence of fetal compromise (prolonged deceleration for more than 3 minutes) fetal blood sampling should not be undertaken and the baby should be delivered urgently

Classification of Fetal Blood Sample Results

<table>
<thead>
<tr>
<th>FETAL pH</th>
<th>SUBSEQUENT ACTION</th>
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<tbody>
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<td>&gt;7.25</td>
<td>Repeat FBS within 1 hour if the FHR remains pathological</td>
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<tr>
<td>7.21-7.24</td>
<td>Repeat FBS within 30 minutes if the FHR remains pathological or consider delivery if rapid fall since the last sample</td>
</tr>
<tr>
<td>&lt;7.20</td>
<td>Delivery indicated</td>
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7.13 Regimen for Syntocinon Infusion

Syntocinon is normally added to normal saline. In hypertensive women Syntocinon should be added to Dextrose/saline. 60 IU of Oxytocin is added to 1000 ml solution.

Administer via an Alaris Ivac Signature pump with 72980E giving set. These pumps administer in millilitres per hour.

Escalation of the tabulated dose in 30 minute intervals permits the optimum dose to be reached in a reasonable period of time by titration against contractions. Contractions should not be more than 4 in 10 minutes and should not last longer than 60 seconds. The uterus should relax adequately between contractions. Effective uterine action can normally be achieved at under 12 milliunits per minute.

Oxytocin dilution 30 IU Oxytocin in 500 mls Normal saline (1 ml/hour = 1 milliunits per minute)
If no adequate contractions have been achieved at 20 mls per hour discuss with Registrar and/or Consultant.

When adequate contractions have been achieved, maintain oxytocin infusion at that rate.

*Syntocinon should not be started for six hours following administration of vaginal prostaglandins (Pessary) and half an hour after Propess.*

### 7.14 Cord Blood Sampling

All women under obstetric led care **should** have cord blood sampling but it is obligatory:
- after intrumental deliveries
- after emergency CS,
- if fetal bloods sample has been performed during labour,
- at birth if baby’s condition is poor.

**Procedure:**
Double clamp umbilical cord, collect paired samples from the umbilical artery and umbilical vein either with a pre-heparinised syringe or a pre-heparinised tube. NB: the specimen remains stable at room temperature for up to 1 hour.

**Interpretation:**
Lower limit of normal may range from 7.02 - 7.18 but the risk of mortality and morbidity does not increase unless the value is < 7.00 and even then the risk is small.

**Risk Management**
Values of <7.1 should be reported

**References:**
NICE Clinical guideline No- 55, Intrapartum care; September 2007

### 8 Guidelines for the care of 'unbooked women' presenting in labour

The woman should be admitted to the main delivery unit
• Old notes, if applicable, should be obtained. If old notes do not exist a temporary set of notes should be compiled

• A brief history should be taken, time permitting inc:
  • Menstrual dates if known, to give an idea of possible gestation
  • Contraceptive type if applicable
  • Past obstetric history including details of operative deliveries, third stage problems etc,
  • Past medical history
  • Relevant family history
  • Drugs (prescription, illicit, alcohol, cigarettes)
  • Allergies

• Examination including:
  • Temperature, pulse, blood pressure
  • Abdominal palpation
  • Fetal heart auscultation

• Blood should be taken for -
  • Group and RH. Factor (long pink-topped bottle)
  • FBC (purple topped bottle)
  • Treponemal antibody test (orange/yellow bottle)
  • Routine antenatal virology screen (Hep B, Rubella,) (orange/yellow topped bottle)
  • Others indicated from history and examination eg PET bloods (orange/yellow topped bottle) and clotting (blue topped bottle)

• The blood should be sent to the lab immediately with a request to telephone results back to the ward. (If a positive Hepatitis B result is found the midwife must inform the Paediatric SHO as the first Hepatitis B vaccine and HBIG must be prescribed and given within the first 12 hours of life). For follow up care of mothers with positive Hepatitis B, see Hepatitis B policy
• Mini USS performed if feasible
• Vaginal examination to assess stage of labour
• Care of the labouring mother should proceed as usual, governed by any risk factors identified in the history, examination, USS, or vaginal examination.
• Midwife must check the Confidential file for Social Service alerts and high risk alerts on mothers.
9 **Induction of Labour (IOL)**

IOL booked at term +12, leaflets to be given at admission - confirm gestation/indication/plan for IOL

- CTG before Propess
- Confirm Presentation
- Vaginal Examination

**Bishops Score <7**

- Propess 10mg PV, CTG – for 30 mins
- Propess removed after 24hrs, Reassess, CTG for 30 mins.

**Bishops Score >7**

- ARM
- Commence syntocinon after 2hrs if no contractions
- V/E 4 hrs after regular contractions
- Continue CTG monitoring
- No Progress or no contractions after 8hrs of Syntocinon discuss with Consultant On-Call

**PROPESS – Key Points:**
- Patient placed in semi-recumbent or left lateral position for 20-30 mins after insertion
- If Propess falls out - reinsert
- If hyperstimulation (>5 contractions in 10mins with CTG abnormality) – give Inj Terbutaline 0.25mg s.c
- If low risk patient intermittent monitoring can be considered but discuss with obstetrician

**References:** NICE Clinical guideline No- 55, Intrapartum care; September 2007
10 Management of women with previous Caesarean Section in labour

Labour and Birth

1. Labour is managed to optimise a normal outcome
2. Delivery planned at an obstetric unit with availability of obstetric theatre and onsite blood transfusion
3. IV Access with FBC and Group & Save samples sent
4. One to one care with midwife
5. Continuous CTG monitoring (Fetal distress has been reported to precede uterine rupture)
7. Concerns with progress of labour should be reported to registrar on call for labour ward.
8. The use of syntocinon to augment poor progress or secondary arrest must be discussed with the consultant
9. Guideline for the use of Syntocinon in VBAC is identical to the guidelines for its use with any other labour (see Induction of labour P 11)
10. Epidural analgesia is available on request
11. Regular maternal observations including BP, Pulse and temperature
12. Awareness of classical symptoms of scar rupture - pain, scar tenderness, bleeding PV, maternal tachycardia, hypotension and fetal distress
13. Post partum scar palpation not required.

Post natal care after caesarean section

1. Doctors and midwives should discuss pregnancy and labour events with women and document their discussion in the clinical record
2. Each woman is provided with information about reasons for her CS
3. Discussion should cover implications for future pregnancy.

References

1. ‘Birth after previous caesarean birth’ Green top guideline No45 RCOG 2007
2. NHS Institute for Innovation and Improvement 2006 Delivering Quality and Value Focus on: Caesarean Section DH, London
4. Nice Guideline Caesarean Section Guideline 13 2004
10. NICE guideline Intrapartum Care 2007
11 SPONTANEOUS RUPTURE OF MEMBRANES (SROM)

Diagnosis

- Record the accurate time of SROM, colour and liquor
- Perform maternal temperature, pulse, BP and urinalysis
- CTG
- Confirm the evidence of clear liquor draining
- If no evidence of liquor draining – perform speculum examination to confirm SROM
- If in doubt, perform USS for liquor volume

11.1 MANAGEMENT OF SROM >37 WEEKS

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<th>IMMEDIATE IOL</th>
<th>EXPECTANT MANAGEMENT</th>
</tr>
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<td>Chorioamnionitis</td>
<td>Patient allowed to go home with information sheet, thermometer to record temperature.</td>
</tr>
<tr>
<td>Antenatal history of GBS</td>
<td>To check temperature at home 4 hourly during working waking hours</td>
</tr>
<tr>
<td>Signs of fetal compromise</td>
<td>If temperature &gt;37°C or unwell, to return to hospital</td>
</tr>
<tr>
<td>Maternal request (depends on labour ward occupancy)</td>
<td>IOL - in 24hrs</td>
</tr>
<tr>
<td></td>
<td>Prophylactic antibiotics as per guideline</td>
</tr>
</tbody>
</table>

11.2 SPONTANEOUS RUPTURE OF MEMBRANES (PPROM) <37 WEEKS

- Do per speculum examination under aseptic precaution to assess the cervix. Take a HVS
- Do not perform digital vaginal examination unless indicated
- Regular monitoring for signs of infection
- Give corticosteroids if <35 weeks
- Tocolysis not routinely recommended
- Prescribe Erythromycin 500mgm qds x 10 days
- Inform SCBU
- Consider delivery after 34 weeks (IOL with Propess)
- Avoid ventouse delivery before 34 weeks
- At NHH, gestation <30 weeks – transfer to RGH (consultant to consultant) or to a unit with SCBU bed availability
- All transfers– inform the consultant
11.3 Corticosteroids

Dose: Betamethasone 12mgm IM – 2 doses 24hrs apart
or
Injection of Dexamethasone 6mgm IM – 12hrs apart x 4 doses

Indications for steroids

- If delivery anticipated between 24 and 35 weeks
- Steroids at gestation <24 weeks – should be decided by the consultant
- All IUGR babies – between 25 and 36 weeks
- Elective Caesarean section <39 weeks
- PPROM
- Ante Partum haemorrhage

Contraindications for steroids

- Sepsis
- Systemic infection including tuberculosis
- Chorioamnionitis

If steroids given at <26 weeks, single rescue course may be considered if the woman presents again after discussing with the consultant

11.4 Tocolytics

Should be considered to complete a course of steroids or in utero transfer.

First drug of choice:

Nifedipine regime – 20mgm of oral Nifedipine as loading dose followed by 10-20mgm three to four times daily, adjusted according to uterine activity up to 48hrs (total dose of 60mgm)

<table>
<thead>
<tr>
<th>CONTRAINDICATIONS</th>
<th>RELATIVE CONTRAINDICATIONS</th>
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</thead>
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<td>Non reassuring CTG</td>
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<tr>
<td>Severe PET</td>
<td>IUGR</td>
</tr>
<tr>
<td>Intrauterine infection</td>
<td>Multiple pregnancy</td>
</tr>
<tr>
<td>Placental abruption</td>
<td>Mild haemorrhage due to</td>
</tr>
<tr>
<td>Advanced cervical dilatation</td>
<td>placenta praevia</td>
</tr>
<tr>
<td>Evidence of fetal compromise</td>
<td></td>
</tr>
<tr>
<td>Placental insufficiency</td>
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*After giving nifedipine loading dose please check the pulse rate and BP every 30 minutes for first 2 hours then 4 hourly until next dose

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Aneurin Bevan Health Board
Title: Labour Ward Guidelines
Owner: Maternity Services
11.5 Atosiban

The choice of Atosiban (licensed) should be discussed with the duty Consultant.

<table>
<thead>
<tr>
<th>Step</th>
<th>Regimen</th>
<th>Injection Rate</th>
<th>Atosiban dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolus</td>
<td>Over 1 min</td>
<td>0.9 ml.</td>
<td>6.75 mg</td>
</tr>
<tr>
<td>Loading dose</td>
<td>3 hours</td>
<td>24 ml/hour</td>
<td>18 mg/hour (300 mcg/min)</td>
</tr>
<tr>
<td>Maintenance dose</td>
<td>Upto 45 hours</td>
<td>8 ml/hour</td>
<td>6 mg/hour (100 mcg/min)</td>
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</tbody>
</table>

Preparation

Atosiban = Tractocile = 7.5mg/ml
Infusion can be given in 0.9% saline, Ringer solution, or 5% Dextrose

From a 100 ml bag, withdraw 10 ml and discard, replace it with 10 mls Atosiban 7.5 mg/ml=75 mg in 100ml.

Loading infusion 24ml/hour=18mg/hour over 3 hours then reduce the infusion rate to 8ml/hour

11.5.1.1 Contraindications to Atosiban

- >33 wks, <24 wks,
- PROM>30 wks
- Abnormal FH
- Placenta praevia, abruption
- Severe Pre eclampsia
- No data on women with abnormal liver or renal function
- Theoretically increase of ph
- No effect on lactation
- No specific antidote

References:

1. Antenatal Corticosteroids to Prevent Respiratory Distress Syndrome - RCOG green-top guideline No7, October 2010
2. Tocolytic Drugs for Women in Preterm Labour - RCOG green-top guideline No 1B, February 2011
3. Preterm Prelabour Rupture of Membranes – RCOG green-top guideline No 44, October 2010
12 PRE-TERM LABOUR

Pre-term is birth of a baby less than 37 weeks of gestation age. Painful contractions occurring >1 in 10 mins with cervical effacement and dilatation.

**Threatened pre-term/pre-term labour**

**Initial assessment**
- Pulse, temperature, BP, urine dipstick/MSU
- CTG monitoring
- FBC, group & save
- Abdominal exam / scan for presentation
- Speculum exam for cervical dilatation
- Vaginal exam if only indicated

**Give corticosteroids**, if not given before
Consider tocolytics until steroids act

**Establish SCBU status**

**SCBU open**
- Admit the patient
- Steroids
- Tocolytics*

**SCBU closed**
- In utero transfer if cervix <4cm
- Inform consultant on-call
- Consultant to consultant (RGH to NHH) as per hospital policy

**NB:** Nevill Hall SCBU takes babies from 30 weeks

* See Corticosteroids/Tocolytic regime in the SROM guideline

References: Tocolytic Drugs for Women in Preterm Labour - RCOG green-top guideline No 1B, February 2011
13 Group B Streptococcal Prophylaxis in Pregnancy and Labour

Incidence of early onset neonatal infection – 0.5/1000 births

Antenatal

- Routine screening not recommended for AN GBS carriage
- AN treatment with penicillin not recommended

Intrapartum

Use intrapartum antibiotic prophylaxis in the presence of these risk factors with incidental carriage

- Prematurity <37 weeks
- Prolonged rupture of membranes >18hrs
- Fever in labour >38°C
- If GBS is detected incidentally in the vaginal swab or urine in the current pregnancy
- Previous baby with neonatal GBS disease
- PPROM in established labour

- Antibiotics started as soon as possible after onset of labour or at least 2hrs before delivery
- Penicillin G 3gm IV followed by 1.5gm every 4hrs during labour
- If allergic to Penicillin, give IV Clindamycin 900mgm – 8 hourly
- If chorioamnionitis suspected broad-spectrum antibiotics therapy including an agent active against GBS should be given (Give Inj Tazozin 4.5 G –IV -8 hourly, if allergic to penicillin give Inj Imipenam 500 mg –IV-6 hourly

Prevention of Early Onset Neonatal Group B Streptococcal Disease-
RCOG Greentop Guideline No: 36
14 Pre-eclampsia and Eclampsia

Definitions

Mild Hypertension - BP 140-149/90-99 mmHg  
Moderate Hypertension - BP 150-159/100-109 mmHg  
Severe hypertension - BP ≥ 160/110 mmHg

Anti hypertensives
Aim of the therapy is to keep BP < 150/80-100 mmHg

Choice of antihypertensives
First line

Labetolol - it improves cerebral perfusion, thereby reduces the risk of eclampsia. Compared with hydralazine it has less maternal and fetal side effects

Oral
If patient not on antihypertensives and can tolerate oral therapy –
- Give T labetolol 200 mg- stat dose
- Recheck the BP in half an hour
- If BP high second dose can be given in 1 hour

Intravenous
Indicated if
- Severe hypertension (BP > 160/110 or MAP >125 mmHg)
- BP not controlled by oral therapy or if oral cannot be tolerated

Bolus Dose
Give 50 mg IV Labetolol over 1 minute (10 ml labetolol-5mg/ml)
Effect seen in 5 minutes - recheck the BP
If BP not controlled repeat the bolus every 20 minutes to a maximum dose of 200 mg
Maintain the pulse rate > 60 beats/min

Maintenance Dose
200 mg of labetolol added to 200 ml physiological saline (2 ampoules- 5 mg/ml)
Infuse at 20 mg/hour and double the dose every 30 minutes to maximum dose of 160 mg/hour.

Second line
Nifedipine and hydralazine are vasodilators. Use of Magnesium sulphate with Nifedipine is not seen as a problem (MAGPIE study)
Nifedipine
- Give 10 mg oral tablet (not a slow release tablet) initially
- BP measured every 10 minutes in the first half an hour
- Do continuous CTG monitoring
- Dose repeated 6th hourly
- Postnatally, dose can be changed to slow release tablets which lasts 12 hours

Hydralazine
- Expansion of the circulating blood volume prior to treatment is recommended
- Liaise with anaesthetist
- Give 250ml bolus of colloid solution

Hydralazine 60 mg = 60 ml normal saline (3 amps of hydralazine with 60mls of sodium chloride) via syringe driver

Bolus
IV Hydralazine 10 mg slowly, repeated doses of 5 mg at 20 minutes interval up to 30 mg maximum. The drug has effect up to 6 hours

Maintenance
Infusion of 2 mg/hour, increased by 0.5 mg/hour to a maximum of 20 mg/hour

Fluid management prior to delivery
Total intravenous input should be restricted to 80 ml/hour (approximately 1ml/kg/hr)
During labour, oliguria should not precipitate any specific intervention except to progress to delivery
Consider fluid loading prior to establishing regional block

Seizure prophylaxis

Magnesium sulphate protocol – this is under review at the moment, laminated protocol in treatment room of MDU RGH and on the Delivery Suite in NHH

Recurrence of seizures
Repeat IV loading dose of 2g magnesium sulphate if ≤70 kg or 4 g if ≥70 kg over 5-10 minutes.
If this fails, inform the anaesthetist and consider diazepam 10 ml IV or thiopentone 3-5 mg/kg IV to paralyse and intubate.

Monitor and record in HDU chart
- Continuous pulse oximetry
- Hourly urine output
- Hourly respiratory rate
• Deep tendon (patellar) reflexes- every 10 minutes for first 2 hours and then very 30 minutes

Stop magnesium sulphate infusion and check the levels if
• Urine output is < 100 ml in 4 hours
• Patellar reflexes are absent (assuming not due to regional block)
• Respiratory rate < 16 beats/minute
• O₂ saturation is < 90%

There is no need to measure magnesium levels if urine output is maintained.
Check magnesium levels if toxicity is suspected on clinical grounds.
The antidote is 10ml of 10% calcium gluconate—slow IV.
Restart the magnesium sulphate if urine output improves.
POST PARTUM FLUID PROTOCOL – PRE ECLAMPSIA

- Only 2% of women develop severe oliguria
- No response needed until 8hr period

Urine output measured in 4hrs block for 8hrs

2 consecutive blocks fail to achieve 80ml/4hrs

Compare input & output since delivery or in last 24hrs (whichever is shorter)

Input >750ml in excess of output
Give IV Frusemide 20mgm

Input <750ml in excess of output
Give 250ml of Gelfusine in 20mins

Watch urine output for next 4hr block

Urine output – low, give Frusemide 20mgm IV

Diuresis in excess of 250ml in the next hour
Give 250ml of Gelfusine in addition to baseline fluid

No response
Discuss with Regional Centre
Do electrolytes – 6 hourly

References: Yorkshire Postpartum Fluid Protocol
2. RCOG green top guideline – No 10A, March 2006 The Management of Severe Pre-Eclampsia/Eclampsia
SEVERE PET/ECLAMPSIA FLOWCHART

Severe PET and proteinuria or mild or moderate hypertension and proteinuria with one of the following:
- Headache
- Blurred vision
- Epigastric pain/vomiting
- Signs of clonus (≥3 beats)
- HELLP Syndrome
- Liver tenderness
- Platelet count <100 x 10^9/l
- Abnormal liver enzymes (ALT or AST > 70 iu/l).

Call for help from Midwives, obstetricians & anaesthetists
Do not leave the patient alone

ABC
IV access x 2
Bloods - FBC/G&S/U&E’s/LFT/Coag/Protein Creatinine Ratio/urate

MgSO4 loading & infusion dose

Assess need for anti-hypertensives:
Labetalol IV
Hydralazine IV or
Aim for BP <150/80-100

Foleys catheter
Fluid restriction – 80ml/hr
MEOWS chart

Plan delivery
Steroids if <36 weeks

Mode of delivery depending on clinical circumstances/gestation/suitability for IOL
If BP controlled, no need to limit 2nd stage duration

Follow Pathway for postnatal management of PET/Eclampsia

Do not use Ergometrine for 3rd stage
Continue MgSO4 for 24hrs after delivery & MEOWS chart monitoring

* please refer to the dosage regime
15 Management of Labour in Women with IDDM/ Gestational Diabetes

Induction of labour

The mode and timing of delivery will be decided by the joint Obstetric and Medical team.
The standard IOL protocol will be followed (Propess/prostin, CTG monitoring etc).
During latent phase when woman is on a normal diet, continue routine insulin (usually basal bolus and will be prescribed by the team) and BM monitoring QDS, after food.

In established labour

Woman to be transferred to labour ward (LW) and commence sliding scale for all women on insulin.
If there is delay in transfer to LW commence sliding scale on the ward. Actrapid 40 IU in 40 ml normal saline (use the stickers) + 10% dextrose infusion (1000ml) with added KCL (20mmol)

Sliding Scale

<table>
<thead>
<tr>
<th>Units/hour = ml/hr</th>
<th>BM stick - glucose in mmol</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>0 - 3.5</td>
</tr>
<tr>
<td>1</td>
<td>3.5 - 4.9</td>
</tr>
<tr>
<td>2</td>
<td>5 - 9.9</td>
</tr>
<tr>
<td>3</td>
<td>10 - 14.9</td>
</tr>
<tr>
<td>4</td>
<td>&gt; 15</td>
</tr>
</tbody>
</table>

Inform Obstetric and Anaesthetic registrar
Standard high risk monitoring- maternal observations, continuous CTG, maintenance of partogram

Check BMs hourly and ensure maintained between 4-7 mmol/L

<table>
<thead>
<tr>
<th>Women on Insulin sliding scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>BM &lt; 4- treat hypoglycemia (3 glucose tablets/ gel, and increase dextrose infusion and follow insulin dose as on the sticker)</td>
</tr>
<tr>
<td>BM &gt;15- liaise with diabetic team/on call medical team and change infusion to normal saline, while awaiting review</td>
</tr>
</tbody>
</table>

Keep consultant on call informed about progress.
Anticipate shoulder dystocia at birth and follow protocol for shoulder dystocia
Post delivery

**IDDM**
Continue sliding scale until they are back on regular meals.
Check BMs hourly whilst on sliding scale.

**Change from sliding scale to subcutaneous insulin.**

If delivered in the **daytime**, give a light snack. Give short acting insulin (pre pregnancy dose) prior to the meal (breakfast/lunch/dinner) and stop the insulin infusion after 30 minutes. Give night time long acting insulin.
If delivered in the **night** give light snack and night time long acting insulin (pre pregnancy dose). Halve insulin after 3rd stage and continue sliding scale with hourly BMs till breakfast time when short acting pre-pregnancy insulin is given followed by breakfast. The sliding scale is stopped 30 minutes later.

Continue Dextrose 10% for one hour
BM are checked QDS after food once the sliding scale is stopped until discharged by the team.

If breastfeeding the insulin dose may need to be reduced by further 25-30% and advice about hypo management should be re-iterated. Metformin is compatible with breastfeeding.

**Gestational diabetes/type 2 diabetes**
Stop sliding scale after completion of 3rd stage in women
Continue dextrose 10% infusion for one hour
BM measured QDS after food for 48 hours

If BMs are erratic (if > 15, discuss with medical/diabetic team).
Neonate will be observed for signs of hypoglycaemia as per protocol

**Elective Caesarean section**
Commence sliding scale on the morning of the procedure (7am) with 1 L of 10% Dextrose infusion with 20 mmol KCL.
Hourly BMs to be checked from 7am (even during the surgery)
Continue sliding scale and hourly BMs until normal eating commences, then pre-pregnancy insulin should be started.
Change over from IV to S/C insulin as per protocol above.

**Emergency Caesarean section**
Women are on sliding scale, follow the instructions as above for changing from sliding scale to pre-pregnancy insulin and frequency of BM monitoring.
Preterm labour

Threatened/established Preterm labour

If requires prophylactic steroids, commence IV sliding scale as per protocol with the first dose of the steroid and along with subcutaneous insulin if patient is on her regular diet (i.e. Kaushal regime and 36 hour BM recording sheet)

Nifedipine regime/ Atosiban for tocolysis

Follow the management of preterm labour protocol.
Stop the sliding scale insulin 24 hours after the second dose of steroid.

Control of BMs is likely to be difficult.

* See GHT DIR 1221 Management of Diabetic Ketoacidosis in Adults (DKA) – Issue 2.pdf

** See GHT/DIR/Guide to the Management of Hypoglycaemia in Adults
16 Protocol for Genital Herpes in Pregnancy

Genital Herpes antenatal <34 weeks gestation

Primary Episode

1. GUM Referral
2. Start oral/IV Aciclovir – Explain the benefits and risks
3. Type specific HSV antibody testing

Recurrent Episode

1. Antiviral Rx is rarely needed
2. Risk of transmission is small
3. Cultures to predict viral shedding at term is not indicated
4. C-Section is not indicated
5. C-Section & Prophylactic suppressive Aciclovir can be considered in women with herpetic lesions or co-infection with HIV

Aciclovir Regime
-200mgs 5 times daily/400mgs 3 times daily for 5 days
-Disseminated HSV infection need IV Aciclovir

*Not licenced in pregnancy but no evidence of teratogenicity
*Avoid Aciclovir in <20 weeks

Abbreviations
GUM- Genito Urinary Medicine
ARM- Artificial Rupture of Membranes
HSV- Herpes Simplex Virus
FSE- Fetal Scalp Electrode
HIV- Human Immunodeficiency Virus
FBS- Fetal Blood Sampling
Protocol for Genital Herpes during Labour or >34 weeks gestation

Breastfeeding is only contraindicated in the event of a herpetic lesion on the breast.

Reference: Management of genital Herpes in Pregnancy, RCOG Green-top guideline No. 30, September 2007

Abbreviations
GUM – Genito Urinary Medicine
ARM – Artificial Rupture of Membranes
HSV – Herpes Simplex Virus
FSE – Fetal Scalp Electrode
HIV – Human Immunodeficiency Virus
FBS – Fetal Blood Sampling
17 Instrumental delivery pre-requisites

Pre-requisites for instrumental vaginal delivery

Cervix is fully dilated

Fetal head should not be palpable abdominally

Vertex should be at or below spines (0 station) – not caput

Ensure exact position of fetal head

Check mother understands and agrees with the plan. Written consent taken for trial in theatre

Ensure analgesia Pudendal block/Epidural/Spinal

Inform Neonatologists to attend delivery
Ensure Pre-requisites

Clean & drape perineum

Empty bladder

Confirm fetal head position (Vaginal Exam/Scan)
(if occipito anterior use OA cup/NB Forceps – ensure blades locked)

Confirm fetal head position
(if occipito transverse use:
- OP cup
- Keilands if skilled
- Manual rotation & NB forceps)

The head should descend with each pull

Delivery should be completed after 3 contractions

The cup should be applied no more than twice if slips

If cup slips, only apply forceps if head occipito anterior and literally about to deliver

If no descent of fetal head, abandon procedure and proceed to LSCS. Foley’s catheter

Inform patient
Push vertex prior to Caesarean
Make higher incision on lower segment
Prophylactic Syntocinon infusion 40 IU in 500ml
Normal Saline - 125ml/hr

See protocol on difficult delivery of head at LSCS*

Postnatal debriefing, documentation & discuss the mode of future delivery
18 Pre Requisites for Caesarean Section

- Obtain informed consent
- Full Blood Count/ Group & Save/ Cross match if needed
- Ensure appropriate antacids given (all results available)
- In anticipated difficult Caesareans ensure senior obstetrician is available
- Ensure anaesthesia is achieved
  Discuss relevant anaesthetic type in category I caesarean section with anaesthetist
- Ensure neonatologists present for emergency caesarean section/elective caesarean section if any neonatal concerns
- Indwelling Foleys catheter
- Prophylactic antibiotics at induction and Thromboprophylaxis should be given as per protocol. (IV Cefuroxime 1.5 g and IV metranidazole 500mg)

CLASSIFICATION OF CAESAREAN SECTIONS

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- 30 mins</td>
<td>Immediate threat to life of women or fetus, e.g. severe bradycardia, cord prolapse, uterine rupture, fetal Blood sampling &gt;7.2</td>
</tr>
<tr>
<td>2- 30 to 70 mins</td>
<td>Maternal/fetal compromise which is not immediately life-threatening, e.g. APH, failure to progress with maternal or fetal compromise</td>
</tr>
<tr>
<td>3</td>
<td>No maternal or fetal compromise but needs early delivery (scheduled) e.g. failed IOL or failure to progress</td>
</tr>
<tr>
<td>4</td>
<td>Delivery timed to suit the woman or staff (elective)</td>
</tr>
</tbody>
</table>
2ND Stage Caesarean Section

Ensure pre requisites
Ensure adequate exposure

Uterine incision at upper end of lower segment (high) after reflecting utero-vesical fold

Do not fight a contracted uterus - wait 10 seconds for it to relax

Deliver head by flexing with fingers not wrist. Consider GTN spray/Terbutaline 0.25mg IM if uterus not relaxing *

Check uterus is empty and dry before closing

Identify and secure each angle carefully

Be aware of post partum haemorrhage and manage actively

* Safe use of IV GTN to relax the uterus and aid delivery of the impacted head at Caesarean Section

Contraindicated with hypovolaemia, raised intracranial pressure and Nitrate sensitivity

Dose –
- 50 mgs (1 ampoule into 1 litre i.e. 50 micrograms/ml)
- Bolus of 5 ml (can be repeated every 5 minutes)
19 GUIDELINE FOR DIFFICULT DELIVERY OF FETAL HEAD

1 Caesarean section in second stage

2 Obstructed labour

- V/E and try to disengage the fetal head prior to c/s

- Patient is placed in a Lloyd Davies position (modified lithotomy)

- Vaginal assistant pushes the head upwards prior to uterine incision in between uterine contractions

At c/s slowly pass the hand deep into the lower segment and slowly lift the head out.

Make sure that your hand is far enough down so that the head does not become laterally hyperflexed during extraction

For deeply engaged head

If still undelivered

Right handed surgeon standing in the right should pass the left hand behind the baby’s head (The opposite in case of a left handed surgeon standing in the left)

If still undelivered

Pull method

This involves delivering the breech first. In most cases this can be carried out through a transverse incision in the uterus. Incision may need to be increased to a ‘J’ / inverted ‘T’. The hand is passed through until a leg is reached. Then either the leg or the breech is delivered. The rest of the delivery will be as for a breech delivery for a c/s.

Modified Patwardhan’s method can also be used for deeply engaged head where disimpaction is unsuccessful. This involves delivering the anterior shoulder by hooking through the axilla followed by posterior shoulder. Then to deliver the baby by breech.

Landesman Abdominovaginal delivery - Woman is placed in the Whitmore position (a modified lithotomy). An assistant introduces their hand into the vagina to push the head up, the surgeon at the same time places an upward traction on the shoulders to help in dislodging the head.
3

High head

Can use Terbutaline – 250 μgm s/c or Nitroglycerine - 800μgm as 2 puffs s/l to relax the uterus

Fundal pressure/ fixing the fetal head by the assistant until the head has been grasped by the surgeon

If still not delivered

Kiwi cup or Wrigley’s forceps can be used

Can also be delivered by pull method as breech

4

Entrapped head in breech presentation, particularly in preterm or oligohydramnios.

Ask the anaesthetist to administer uterine relaxant
(Terbutaline - 250μgm s/c or Nitroglycerine- 800μgm – 2 puffs)

Ensure that both abdominal and uterine incisions are adequate

Attempt to pass your hand alongside the baby’s head and apply wrigley’s forceps

Extension of incision to a ‘J’ or inverted ‘T’

Please note – Following difficult delivery of fetal head it is essential to check the bladder and if bladder injury is suspected – check with methylene blue and document in the case notes

References:
1. MOET Course manual, 2006

20 Surgical Management of Post Partum Haemorrhage
(for medical management see Major Obstetric Haemorrhage management Guideline – ABHB/W&C/0293)

1. If medical treatment fails, consider another cause of bleeding. Inform an Obstetric Consultant on call, ask an Anaesthetist to contact an Anaesthetic Consultant and perform EUA.

2. Regularly monitor coagulation screen and FBC.

3. Inform relatives that a hysterectomy may be necessary for persistent uterine atony, placenta accreta or ruptured uterus.

In the case of massive postpartum haemorrhage before resorting to hysterectomy try locally accepted methods including the Bakri tamponade balloon and the Brace Suture and to uterine artery ligation

1. SOS Bakri tamponade balloon
   (located in the catastrophic haemorrhage trolley).

   The balloon is made of silicon with a capacity of 500ml of saline achieving tamponade effect to control bleeding. It can be helpful in assisting stopping the bleeding from placenta praevia/accreta during CS or after in the immediate post partum period. Before closing the uterine incision introduce the distal end of the deflated balloon into the cervix where it is pulled by an assistant though the vagina. Before inflation of the balloon insert Oxycel or other gelatin sponge to the oozing inner surface of the lower segment to function as a haemostatic cushion. Leave in situ for 24 hours. To increase pressure to further tamponade the bleeding, the distal part of the shaft can be loaded by stretching and attaching to the leg of the woman. Balloon can also be inserted in to the uterus by retrograde placement via the vagina.

2. Brace suture (b-lynch) for massive postpartum haemorrhage
   1. GA
   2. Pfannenstiel incision or if bleeding after CS reopen and same incision.
   3. Lower segment is opened after dissecting bladder off, or a recent CS suture is removed and cavity entered. Evacuate cavity and examine cavity.
   4. Exteritorize uterus and check for any bleeding points.
   5. Try bimanual compression of uterus to assess the potential chance of success of B Lynch suture.
   6. If bleeding is stopped by compressing the uterus, start suturing.
7. Use number 2 chromic catgut on round body needle.

8. Puncture the uterus 3 cm from the left lateral border. The stitch is threaded through the uterine cavity to emerge at the upper incision margin 3 cm above and approximately 4 cm from the lateral border (because the uterus widens from below upwards).

9. The chromic catgut is passed over to compress uterine fundus approximately 3-4 cm from the left cornual border. The catgut is fed posteriorly and vertically to enter the posterior wall of the uterine cavity at the same level as the upper anterior entry point.

10. The chromic catgut is pulled under moderate tension assisted by manual compression exerted by the first assistant.

11. The length of the catgut is passed back posteriorly through the same surface marking as for the left side with the suture lying horizontally.

12. The catgut is fed through posteriorly and vertically over the fundus to lie anteriorly and vertically to compress the fundus on the right side. The needle is passed on the same fashion on the right side through the uterine cavity and put approximately 3 cm anteriorly and below the lower incision margin on the right side.

13. The two lengths of the catgut are pulled taught assisted by bimanual compression to minimise trauma and to achieve or to aid compression. When bleeding is controlled double throw knot followed by 2 or 3 further throws inserted to secure tension.

14. The lower uterine incision is now closed in the normal way in 2 layers. See diagrams
**Uterine artery ligation in the control of post Caesarean haemorrhage**

The aim is to devascularize the postcaesarean uterus with bilateral mass ligation of the ascending branches of the uterine arteries and veins:

1. Make sure the bladder is pushed well down
2. The ligation is performed 2-3 cm below the level of the uterine incision and needs to include 2-3 cm of the myometrium in the suture.
3. Stand on the left side of the woman and grasp and elevate uterus with the left hand (figure 1) and tilt it away from you to expose the vessels on the left side of the uterus (figure 2).
4. Use no 1 Mayo needle with no 1 chromic catgut.
5. Start ligating the left uterine artery and vein by passing the needle 2-3 cm medial to the vessels including almost the full thickness of the myometrium and then bring it through the avascular area lateral to the vessels.
6. Next ligate the right uterine artery by passing the needle through the broad ligament's avascular area lateral to the vessels and then medially through almost the full thickness of the uterine wall (figure 2).
7. Perform only a single ligation on each side (figure 3). Mass ligation does not enter the uterine cavity but does include almost a full thickness of the wall (figure 3).
8. Then compress the uterus with the hot pack.
9. Inspect vaginal bleeding, if controlled, close abdomen.

**Figure 1**
Figure 2

The uterus is tilted to the side to expose the vessels, and the ligature is placed 2-3 cm inferior to the incision. It includes 2-3 cm of uterine wall.

![Figure 2](image)

Figure 3

A coronal view of the lower uterine segment. The suture is inserted into the substance of the cervix without entering the uterine cavity and medial to the blood vessels.

![Figure 3](image)


21 Breech Delivery
The decision as to the mode of delivery is made in the clinic by a Senior Obstetrician if the breech has been diagnosed antenatally. If the breech is first diagnosed in labour, decision regarding the mode of delivery is taken by the duty Registrar in discussion with the Consultant. If you are not certain about the presentation USE ULTRASONIC SCANNER.

Breech deliveries are conducted by the most senior clinician, normally the duty Registrar, assisted by an SHO.

An Anaesthetist and Paediatrician are present at the delivery. Epidural analgesia, spinal analgesia or epidural/spinal analgesia is the analgesia of choice, if mother agrees.

If the progress of labour is slow, do not accelerate it with Syntocinon until you have discussed your management with a Consultant.
22 Management of Breech Presentation in Labour in hospital (Expected and Unexpected Breech)

- Confirm presentation
- Transfer to delivery suite / get help
- Most experienced clinician
- Inform Paediatrician & prepare for resuscitation
- Inform Anaesthetist & consider epidural (CSE)
- Explain carefully to woman & labour partners
- Inform on call Obstetric Consultant

- Continuous CTG
  - Fetal Distress?
    - Yes
      - Breech delivering?
        - Yes
          - Deliver by caesarean section
        - No
          - No
        - Yes
          - Assess cervical dilatation
            - Station of Breech
              - Cervix Fully dilated?
                - Yes
                  - Place legs in lithotomy and take end of bed away
                    - HANDS OFF THE BREECH
                    - Allow the breech to descend
                    - Breech on perineum. Consider episiotomy.
                - No
                  - Consider vaginal delivery
                    - Consider caesarean section
                    - Check contraindications for vaginal breech delivery
                    - Informed consent
              - Breech descending?
                - Yes
                  - With further descent, legs usually deliver without handling.
                    - If delay with extended legs, deliver by flexion at knee joint and extension at hips
                    - DO NOT ALLOW BABY’S BACK TO ROTATE POSTERIORLY
                    - BABY’S SACRUM MUST BE UPPERMOST IF WOMAN IS SUPINE
                      - Allow arms to deliver.
                      - If arms extended and delaying progress, LOVSETT’S manoeuvre
                      - Allow breech and head to descend until the nape of the neck is visible
                - No
                  - Mauriceau-Smellie Veit manoeuvre
                    - Forceps, if required, by skilled obstetrician

- No
23 Breech Trouble Shooting

In the event of difficulty during a breech delivery:

Fetal Arms Extend (nuchal arms)
Lovsett’s manoeuvre

Don’t panic or pull

- Rotate the baby using gentle grip on pelvis and sacrum so posterior shoulder becomes anterior
- Deliver this arm by gently flexing at the elbow so that baby’s arm sweeps the face
- Rotate 180 degrees in the opposite direction to release other arm
- Deliver this arm by same method

ALWAYS KEEP BABY’S SACRUM UPPERMOST DURING MANOEUVRES

1 Head fails to deliver

Don’t panic or pull

- Ensure nape of neck is visible
- Wrap baby’s body in warm towel
- Get assistant to lift baby’s body 180 degrees upwards and keep back straight and arms tucked in (Burns Marshall manoeuvre)
- Apply Nevill Barnes forceps or, if skilled, Keillands to head.

Reference:
Management of Breech Presentation, RCOG Green-top guideline No 20B, December 2006
24 TWIN DELIVERY

Confirmation of twins by USS
Consider early transfer to labour ward and early epidural. Continue EFM.
IV access. Bloods – FBC, Group & Save

Top up epidural at 2nd stage. Keep syntocinon augmentation drip and USS ready for 2nd twin

Deliver Twin I as if singleton

Cephalic/Breech
commence syntocinon infusion &

Continue EFM
Palpate abdomen
Check lie & FHR
Scan to confirm presentation

If Transverse
Perform ECV

If FH normal
there is no absolute
time limit for interval
between birth of

ARM ONLY if
presenting part in pelvis during contractions

SUCCESSFUL
Fetal distress

YES
Deliver by Ventouse/Forceps
if head low
C-Section if high presenting part

NO
Aim for normal vaginal

UNSUCCESSFUL –
Perform internal podalic version & breech delivery/ extraction by experienced obstetrician
25 Management of Twin delivery
If twin 1 is non-vertex at presentation, given the evidence on breech delivery, caesarean section could be advised although maternal choice should be respected. Vaginal twin delivery after previous cesarean does not appear to carry further risk than a singleton VBAC and therefore should be recommended.

Labour checklist
1. IV access, FBC, Group and save
2. Inform SCBU, Paediatric SpR and SHO (prepare 2 resuscitaire units, more if higher order delivery)
3. Inform Obstetric and Anaesthetic registrar
4. Availability of portable USS machine
5. Delivery trolley (two sets equipment), forceps, amni-hook
6. Syntocinon infusion: 10 milliunits/min for contractions after twin 1 delivered
7. Syntocinon 40IU infusion in 500ml of Normal Saline for prevention of PPH

Monitoring the fetal heart - Key points
1. Continuous CTG advised of both twins, FSE for twin 1
2. Be alert to same twin traces
3. Close documentation of maternal pulse

Analgesia
Maternal choice is of key importance and all options should be considered. Epidural is the method of choice. The following evidence should be considered as a strong case of the provision of epidural (patient permitting) in cases where there is available time:
1. Use of epidural does not increase the twin-twin delivery interval
2. Instrumental delivery is as high as 8% following spontaneous delivery of twin 1
3. Caesarean delivery id as high as 6% following spontaneous delivery of twin 1
4. Internal manipulation may be necessary for delivery of the second twin.

Anaesthetic considerations
- The early insertion of an effective epidural is beneficial in a twin pregnancy as it allows rapid top-up for a trial of instrumental delivery, external or internal version of the second twin or CS if there are problems.
- The anesthetist should be aware at all times of the progress of twin labours to respond and treat appropriately.
- Elective epidural top-up of 5-10ml of 0.5% levobupivicaine for the delivery of the second twin will facilitate manipulation, instrumental delivery and rapid top-up for CS.

Caesarean section
The usual choices for anaesthetic technique apply.
Points to consider:-
- Engorged epidural veins make a bloody tap more likely.
- Compressed epidural and spinal spaces increase the likelihood of a high regional block.
• Aorto-caval compression is likely to be more severe.
• Surgery (esp. for triplet and quad deliveries) can be prolonged.

**Key points**

- Women with multiple pregnancies are an ‘at risk’ group
- The anesthetist should be actively involved, and be present for the second stage
- Early insertion of an epidural is beneficial and consider elective 5-10ml top up after delivery of 1st twin
- Special care required to avoid aorto-caval compression
- There is a an increased likelihood of premature or prolonged labour, instrumental delivery, and PPH

**Use of Oxytocin in Twin deliveries for slow progress**

Augmentation of the first stage of labour is not contraindicated in twin pregnancies and indications for use in the presence of slow progress should be the same as singleton pregnancies.

**Conduct of delivery**

The length of the second stage for the first twin should not differ from management of a singleton pregnancy.
Presentation and lie of the second twin should be determined by abdominal, vaginal and ultrasound means.
If FH normal there is no absolute time limit for interval between birth of babies
If the contractions cease, and if the lie of twin 2 is longitudinal, oxytocin may be commenced to shorten the delivery interval.

**Tocolysis is indicated if:**
1. Transfer to theatre or caesarean section is indicated
2. If ECV or internal manipulation is required (uterus must be relaxed)

**Non vertex presentation of the second twin**

Internal podalic version (IPV), ECV and breech extraction are of equal outcome when manipulation of the second twin is needed.  
Caesarean section is associated with increased maternal morbidity. 
Decision should be based on the skills of the operator. 
Supervision of junior midwifery and obstetric trainees is vital.

**References**

- Intrapartum Care for the MRCOG and beyond. RCOG Press.
- Queen Charlottes Hospital Twin Guideline
26 SHOULDER DYSTOCIA

CALL FOR HELP
Midwife coordinator, senior obstetrician, neonatal team

Draw buttocks to the edge of the bed
Lay patient more supine

McROBERT’s manoeuvre
(thighs to abdomen)

Suprapubic pressure and routine tractions
(constant/rocking movement)

Consider episiotomy to facilitate internal manoeuvres

Try either manoeuvre first

Deliver posterior arm

Wood Screw manoeuvre

Inform consultant obstetrician & anaesthetist

If above manoeuvres fail, move to “all fours” position OR repeat all above again

Consider Zavenelli/symphisiotomy/cleidotomy

Carefully examine genital tract & repair
Active management of 3rd stage labour
Syntocinon infusion 40 IU in 500ml normal saline 125ml/hr

Document on proforma and complete clinical incident reporting form

Postnatal debriefing
27 Cord Prolapse

Definitions
- **Cord Presentation**: With the membranes intact, the cord is seen on USS to be lying between the presenting part of the foetus and the cervix
- **Occult Cord Prolapse**: The cord lies past the cervix alongside the presenting part of the foetus with ruptured membranes
- **Overt Cord Prolapse**: The cord passes through the cervix past the presenting part of the foetus with ruptured membranes

**Identify Risk Factors**
- Feto-Maternal, Multiparity, Previous cord prolapse, Mal presentation, Polyhydramnios, Multiple gestation, Prematurity < 37/40, Low birth weight < 2.5 kg, Foetal malformation, Unengaged presenting part, Low-lying placenta, Male foetus

**Procedure Related**
- Artificial Rupture of Membranes, External Cephalic Version, Internal Podalic Version, Stabilising ARM, Amnio-reduction/Infusion, Vaginal manipulation of the foetus in the presence of ruptured membranes

**CORD PROLAPSE DETECTED**

**Immediately call for help!!**
- Senior Midwife, Obstetric SpR / Consultant, Paediatrician, Anaesthetist
- IV Access, FBC and Group & save

**Reduce Cord Compression**
- Bladder Filling- Insert size 16 Foley catheter, fill with 500mls saline and clamp
- Maternal Positioning - Knee chest / Trendelenburg position

**Asses Foetal Well Being**
- Determine viability
- Continuous CTG
- Confirm Foetal Heartbeat prior to any procedure

**Fetal Heart Present**
- If fully dilated:
  - Consider ventouse delivery without delay
- If not fully dilated:
  - Category 1 section should be performed
  - At skin incision, release the clamp on the catheter to empty the bladder

**Fetal Heart Absent**
- Confirm IUD with scan
- Await spontaneous delivery

**Immediate Neonatal Review**

**Take Cord Gases Documentation**
- Debrief postnatally

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Issue date: 28 October 2011
Review date: 28 October 2013
Page 46
Expire Date: 28 October 2014
28 UTERINE INVERSION

<table>
<thead>
<tr>
<th>Suspect</th>
<th>Recognition</th>
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</table>
| • Call for help from experienced obstetrician/anaesthetist/midwives  
• Stop Syntocinon if on flow  
• Replacement of uterus concurrently to antishock measures  
• Insert 2 wide bore cannulae (14 to 16G)  
• Collect blood for FBC, coagulation studies, group and cross match 4-6 units  
• Start fluid replacements immediately (colloids and crystalloids)  
• Monitor BP, pulse, urine output, O² saturation continuously  
• Arrange appropriate analgesia  
• Transfer to theatre  
• Attempt to reposition the uterus  
  o Manual replacement (Johnson manoeuvre)  
  o O’Sullivan’s technique infuse 2-3 litres warm saline into posterior fornix of the vagina (use Ventouse silicon cup)  
  o Consider tocolsics to facilitate replacement of uterus (MgS04 2-4g IV 5 mins)  
    Ritrodine 0.15 mgm IV bolus  
    Terbutaline 0.25 mgm IV  
    Nitroglycerine 100 mgm IV  
  o Surgery - *Huntingdon’s method  
    **Haultain’s technique  
    o Oxytocin administered after repositioning (post replacement)  
    o Do not remove placenta, leave until after repositioning  
    o IV prophylactic antibiotics  
    o Thromboprophylaxis as per protocol |

*Huntingdon’s*: Allis forceps placed within the dimple of inverted uterus and gentle upward traction exerted, with further placement of forceps on the advancing fundus.

**Haultain’s**: With the cervical ring posteriorly, incise longitudinally to facilitate uterine placement by Huntingdon’s method.

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• Haemorrhage (94%)  
• Shock that is out of proportion to blood loss owing to vagal stimulation  
• Placenta may or may not be in place  
• Uterine fundus not palpable per abdomen  
• Pelvic examination shows mass in the vagina or outside the introitus |

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29 RUPTURED UTERUS

**RISK FACTORS**
- Obesity
- Uterine scar
- Oxytocic in the multigravida woman or with previous caesarean scar
- Gran multiparity
- Diagnosed CPD – malpresentation
- Placenta accreta
- Macrosomic fetus
- Uterine abnormality
- Prior

**SUSPECT**

A, B, C
- Give O₂ 15 L/min – 100%
- IV access – 2 x 14 or 16G cannulae
- FBC, Group & Save, crossmatch 6 units, coagulation screen
- Call anaesthetist & senior

If baby alive, head fully engaged and cervix fully dilated - vaginal instrumental delivery may be

Cervix not fully dilated - obtain consent for laparotomy & subtotal hysterectomy.
- Perform laparotomy

Operation type – decided by size and site of rupture, degree of haemorrhage and patients fertility

Give prophylactic antibiotics postnatally thromboprophylaxis as per protocol

Document fully in the notes

Debrief patient

**WARNING SIGNS**
- Scar pain and tenderness
- Persistent pain between contractions
- Vaginal bleeding
- Fetal distress
- Fetal heart rate deceleration

**SUSPECT A, B, C**
- Give O₂ 15 L/min – 100%
- IV access – 2 x 14 or 16G cannulae
- FBC, Group & Save, crossmatch 6 units, coagulation screen
- Call anaesthetist & senior

If baby alive, head fully engaged and cervix fully dilated - vaginal instrumental delivery may be

Cervix not fully dilated - obtain consent for laparotomy & subtotal hysterectomy.
- Perform laparotomy

Operation type – decided by size and site of rupture, degree of haemorrhage and patients fertility

Give prophylactic antibiotics postnatally thromboprophylaxis as per protocol

Document fully in the notes

Debrief patient
30 Retained Placenta –(Definition: Placenta undelivered after 30mins)

Airway
Breathing
Circulation

Vaginal examination to confirm retained placenta

Catheterise
IV syntocinon infusion 40 units in 500ml normal saline 125ml/hour
Bloods (FBC, clotting, group & save)

Inform Registrar & Anaesthetist

Epidural top-up/spinal/general

Transfer to theatre & carry out manual removal.
Check that placenta is not in the cervical canal or vagina prior to anaesthetising

- Consider tocolytic to assist removal
- Call senior help if placenta accreta/PPH

Give prophylactic antibiotics
Repair of perineum if needed

Continue syntocinon infusion 125ml/hr post removal

Leave indwelling catheter for 12hrs if spinal/epidural used

Recheck FBC in 2hrs if >total blood loss >1000ml
31 MANAGEMENT OF JEHOVAH’S WITNESSES IN PREGNANCY

ANTENATAL

• To be seen by consultant obstetrician at booking.
• Respect patient wishes.
• Clear statement and documentation of accepted/refused products.
• Make clear Advance Directive.
• Offer the patient to speak with Hospital Liaison Committee for Jehovah’s.
• Ensure that patient has an opportunity to speak with the obstetrician on privacy.
• Clear record of discussion.
• Take document consent in the presence of a witness.
• Witness and the doctor should sign the record of discussion and consent as made.
• Risk of massive obstetric haemorrhage and the importance of blood transfusion, early recourse to hysterectomy should be discussed and documented.
• Check serum B12, Folate and Ferritin at booking and replace as appropriate.
• Consider IV Iron (Ferrinject) if evidence of anaemia and low Ferritin (1 gram IV if >70 kg)
• Anaesthetic Review
• Ensure clear plan of delivery in notes

ELECTIVE CAESAREAN SECTION

• Arrange cell saver.
• Inform consultant anaesthetist/obstetrician.
• LSCS to be performed by consultant obstetrician/anaesthetist.
• Syntocinon 40 units infusion in 500ml Normal saline -125ml/hr postnatally.

CARE PLAN FOR WOMEN IN LABOUR REFUSING BLOOD TRANSFUSION

Patient in Labour

• Admit to labour ward.
• IV access.
• FBC, Group & Save.
• Inform consultant obstetrician and anaesthetist.
• Active III stage management.
• Do not leave the patient alone for first hour after delivery.
• IV Oxytocin infusion if any risk factors of PPH present.

Risk Factors for Post Partum Haemorrhage

• Previous history of bleeding, ante or post partum haemorrhage.
• Prolonged labour (especially when augmented with Oxytocin).
• Abnormal presentation.
• Large baby (>3.5kg) and/or polyhydramnios.
• Increased maternal age (>40 yrs).
• Fibroids/myomectomy scars.
• P3 and more.
• Maternal obesity.
• Multiple pregnancy.

**MANAGEMENT IN ACTIVE HAEMORRHAGE**

**First Steps**
- Involve obstetric, anaesthetist and haematology consultants.
- Establish IV colloid infusion (e.g. Gelofusine).
- Give Oxytocin drugs first, then exclude retained products of conception or trauma.
- Proceed with bimanual uterine compression.
- Give oxygen
- Catheterise and monitor urine output.
- Consider CVP line, aortic compression against the spine, using the fist above the umbilicus (may buy time in emergency).
- Persistent blood loss requiring action - Anticipate Coagulation problems.
- Keep patient fully informed.

**Next Steps**
- Injection Ergometrine 500 micrograms IV, Oxytocin 10 units IV slowly.
- Carbo-prost (Hemabate) 250 mcg/ml im, every 15 minutes – maximum 8 doses (2mgm).
- Rectal misoprostol 1000 micrograms.
- Tranexamic Acid 1gm IV – three times daily.
- Consider IV vitamin K.
- Consider Recombinant Factor VII a – after discussing with haematology consultant. 90 mcg/kg.
- Intrauterine balloon tamponade – Bakin balloon (300-500ml).
- B-Lynch brace suture.
- Involve interventional radiologist for arterial embolisation.
- Internal iliac artery ligation.
- Subtotal hysterectomy – early.

**MANAGEMENT OF POSTPARTUM ANAEMIA**
- Severe anaemia – involve haematologist. Give oxygen use recombinant human erythropoietins 300 units/kg – three-weekly subcutaneously.
- Augment with iron, vitamin B12 and folic acid.
- IV Ferrinject 1 gram if patient > 70 Kg - 15 minute infusion.
- Consider elective ventilation in ICU.
- Hyperbaric oxygen therapy – in life threatening anaemia.

**Contacts:**

Hospital Liaison Committee for Jehovah’s Witnesses

John C Viney (chairman) Tel & Fax: 01446 405666 Mobile: 07973 377136
Russell H Bennett Tel & Fax: 01446 771163 Mobile: 07973 353729
David Newman Tel & Fax: 029 20592568 Mobile: 07860 794807
Stephen Salvidge Tel & Fax: 029 20318634 Mobile: 07958 570469
Arthur E Taylor Tel & Fax: 029 20212775 Mobile: 07773 715362

Members of the Hospital Liaison Committee for Jehovah’s Witnesses are trained to facilitate communication between medical staff and Witness women and are available at any time, night or day, to assist with difficulties either at the request of the treating team or the woman.
32 Extremely Premature Babies between 22 and 26 weeks Gestation
Communication before Delivery

1) The most experienced clinicians available at the time (preferably Consultant Obstetrician and Consultant Paediatrician with an experienced Midwife), should agree a provisional management plan. If possible time should be allowed for all concerned to consider the options and assimilate the information.
2) Management plans should be clearly recorded in the notes and accessible to all clinical staff.
3) When appropriate, parents should be encouraged to seek support from family members and religious advisers.
4) Warn parents that the provisional plan may need revising according to clinical assessment of the baby post delivery.

Gestational Assessment and Management Recommendations
1) Early ultrasound dates, if available, are usually reliable. Caesarean section is rarely appropriate <25 weeks gestation, but in some cases a second opinion may be helpful to the parents.
2) Determine viability by auscultation with Sonicaid.
3) In-utero transfer may be appropriate from 22+0 weeks gestation when considering the potential survival of the baby and providing transfer is considered to be safe for the mother. Reasons for transfer must be clearly discussed with parents prior to transfer.
4) When transfer is considered inappropriate, (<22 weeks), supportive care must be provided for the family.

Neonatal resuscitation
Initial Resuscitation:
1) if gestation certain (confirmed by early ultrasonic scan) and FH heard during labour:
2) >23+0 weeks gestation: An experienced paediatrician and another clinician (neonatal nurse and / or) need to attend birth in order to assess whether active resuscitation is appropriate depending on condition of baby at birth.
3) <22+0 weeks gestation: Paediatrician does not routinely attend birth. Parents need to be informed that baby might show some signs of life perhaps for some time but this does not mean that active resuscitation would be successful.
4) if gestation uncertain and FH audible during labour:
5) A Paediatrician needs to attend all births thought to be >23+0 weeks to assess whether active resuscitation is appropriate (depending on the condition of the baby).

Provisional intensive care:
The response of the baby to active resuscitation is critical in deciding whether to institute "provisional" intensive care, especially in cases of uncertain gestation if the heart rate picks up rapidly and the colour of the baby improves, it is
appropriate to arrange transfer to SCBU for assessment. Further management should be decided by experienced clinicians and will be dependent on the response of the baby to treatment.

**Ethical Consideration:**

1) When agreement between parents and clinical staff cannot be reached over management of the baby after birth, provisional intensive care should be offered, pending further assessment and discussion.

2) Parents of infants who die should be offered bereavement follow up and counselling, including advice about post mortem examination and the prognosis for future pregnancies.

References:

1) The EPICure Study (provisional data – appendix c)


**Appendices:**

a) Flowchart for action

b) Suggested criteria to be taken into consideration when determining management of extremely premature babies

c) Epicure data.
Appendix a) Factors to be taken into account when determining management of Threatened Birth at Extremely Low Gestational Age

Action in Established Pre-term Labour

**Confirmed Gestational Age?**

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<tr>
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<th>In-utero Transfer</th>
<th>Caesarean Section</th>
<th>Paediatric Care</th>
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<tbody>
<tr>
<td>NO</td>
<td>Paediatricians present at delivery</td>
<td>Assume viable infant - assess at delivery and resuscitate if appropriate</td>
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<tr>
<td>YES</td>
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<tr>
<td>21 wks + 6</td>
<td>Not Indicated</td>
<td>Maternal factors only</td>
<td>Present at compassionate delivery **</td>
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<tr>
<td>22 wks + 0 to 22 wks + 6</td>
<td>May be indicated for Obstetric care</td>
<td>Maternal indications only*</td>
<td>Maternal compassionate factors, present at delivery, care only for infant **</td>
</tr>
<tr>
<td>23 wks + 0 to 25 wks + 6</td>
<td>Should be considered</td>
<td>Rarely indicated * Maternal indications only</td>
<td>Assume viable infant - assess at delivery and resuscitate if infant's condition is appropriate ***</td>
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<tr>
<td>26 wks + 0 to 27 wks + 6</td>
<td>Should be considered</td>
<td>Accepted mode of delivery, with fetal compromise</td>
<td>Full resuscitation and supportive care</td>
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* Caesarean section rarely offers benefit to the fetus < 25+6 weeks gestation and should be performed only when indicated for the health of the mother except under exceptional circumstances.

** Infants under 21+6 weeks will not survive: however the Paediatrician may decide to offer active treatment for infants whose gestational age is thought to have been underestimated.

*** There are wide variations in prognosis and outcome for infants born between 23 to 25 +6 weeks. The management of the infant should be consistent with parents’ wishes. For infants without fatal congenital abnormalities, the decision to resuscitate at birth should depend on the infant’s condition. Objective criteria include condition at birth, lack of bruising and presence of spontaneous respiratory efforts.

Appendix b) Factors to be taken into account when determining management of extremely premature babies

Antenatal factors influencing fetal outcome:

- Gestational age
- Steroid administration
- Fetal size
- Presence and severity of pathology
  - IUGR
  - Hypoxia
  - Sepsis
  - Fetal anomaly

Parental factors:
- Cultural
- Religious
- Medical
- Past obstetric history
  - Previous pregnancy loss
  - Sub-fertility

Parental Expectations:
- Understanding of process
- In-utero transfers
- Postnatal assessment
- Paediatric involvement/interventions
- Outcome
  - Survival
  - Morbidity

Condition of Infant at Delivery:
- Apparent maturity
- Birthweight
- Evidence of asphyxia
- Extensive bruising
- Heart rate and activity level
- Respiratory effort and evidence of sustained response to resuscitation.

Appendix c) EPICure Data
The most reliable data available are from the EPICure Study. This was the largest and most comprehensive study of the outcome for extremely premature babies. The primary aim was to measure the survival and health of all children in the United Kingdom and the Republic of Ireland born at 25 weeks gestational age and below between 1st March and 31st December 1995. The intention was to provide information for parents and professionals when faced with the prospect of the birth of an extremely premature baby.

- <23 weeks: 71% died in delivery room
  - 6% overall survival
  - 3% overall survival free of disability
- 24 weeks: 18% died in delivery room
  - 26% overall survived
  - 13% overall survival free of disability
- 25 weeks: 8% died in the delivery room
  - 43% overall survived
  - 22% survived free of disability
33 Management of Sepsis in Labour ward

**Sepsis / Severe Sepsis Screening**


**Presence of any two of the following = SIRS (Systemic Inflammatory Response)**

**Patient antenatal/Labour/postnatal**
- Temp < 36°C or > 38°C
- Respiratory Rate > 24/min
- Leucopenia < 4000 or Lecocytosis > 12000 white blood cells/mm³
- Tachycardia > 90/min

**SIRS + EVIDENCE OF INFECTION = SEPSIS**

**Antenatal**
- History of SROM – Chorioamnionitis
- Recently arrived migrants with medical conditions
- Pyelonephritis
- Pneumonia
- Surgical causes e.g Appendicitis

**Postnatal**
- Endometritis
- Wound Infection/ectriticising
- Septic pelvic thrombosis
- Pneumonia
- Pyelonephritis/ Appendicitis

(Above are only presented as examples, Please consider other causes of infection)

**SEPSIS + ORGAN DYSFUNCTION = SEVERE SEPSIS**

**Any signs of organ dysfunction**
- SBP < 90 OR MAP < 65
- Lactate > 2 mmol
- Urine output < 0.5 ml/kg/hr
- New need for oxygen to keep SPO₂ > 90
- Platelets < 100x10⁹/L
- INR > 1.5 OR APTT > 60 secs
- Newly raised / abnormal creatinine or bilirubin

**Severe Sepsis**
1. Start severe sepsis pathway
2. Transfer to HDU if 1 or ITU if > 1 organ dysfunction
3. Discuss with consultant Anaesthetist

**Sepsis**
1. Start O₂
2. Start IV Antibiotics + Fluids
3. Hourly reassessment for severe sepsis
Severe Sepsis Care Pathway - First Hour Duties

- Start the Clock

<table>
<thead>
<tr>
<th>Sepsis Six</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Oxygen: High Flow 15l/min via mask (Target Saturation &gt;94%)</td>
</tr>
<tr>
<td>2) Blood cultures, FBC, U&amp;E, LFT, Clotting Screen, Glucose, MSU, HVS, Endocervical Swabs, sputum samples</td>
</tr>
<tr>
<td>3) Serum lactate (consider ABG)</td>
</tr>
<tr>
<td>4) Fluid Resuscitation: If hypotensive give boluses of 0.9% saline or Hartmann’s 20ml/kg up to a max of 60ml/kg</td>
</tr>
<tr>
<td>5) IV Antibiotics as per guidance</td>
</tr>
<tr>
<td>IV Tazocin 4.5 g tds, if allergic to penicillin give IV Imipenem 500 mg tds</td>
</tr>
<tr>
<td>6) Catheterise and commence fluid balance</td>
</tr>
<tr>
<td>7) Once patient is stable consider delivery / EVAC</td>
</tr>
<tr>
<td>8) Consider Clexane if Septic VTE</td>
</tr>
</tbody>
</table>
SEPSIS RESUSCITATION – FIRST 6 HOURS

<table>
<thead>
<tr>
<th>Temperature</th>
<th>≤ 36°C or ≥ 38°C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart rate</td>
<td>≥ 90/min</td>
</tr>
<tr>
<td>Respiratory rate</td>
<td>≥ 20/min</td>
</tr>
<tr>
<td>WBC count</td>
<td>≤4000 or ≥12000 white blood cells/mm³</td>
</tr>
</tbody>
</table>

Does the patient have confirmed or suspected infection?

Yes

If Systolic BP < 90 or evidence of organ under perfusion

SEVERE SEPSIS

1) Measure serum lactate
2) Obtain blood cultures prior to antibiotic administration
3) Administer broad-spectrum antibiotics within 1 hour
4) Treat hypotension and/or elevated lactate with fluids:
   - deliver an initial minimum of 20ml/kg crystalloid or colloid
   - administer vasopressors for hypotension not responding to initial fluids to maintain MAP>65mmHg
5) Inform anaesthetist (bleep 0141)

If persistent hypotension (SBP<90mmHg) despite fluid resuscitation (septic shock) and/or lactate >4 mmol/L

CALL ITU (bleep 0133)
34 Late inter-uterine death and stillbirth

Introduction and definition

Delivery of a fetus with no signs of life known to have died after 24 completed weeks of gestation. This careful definition allows those foetuses known to have died before this age, but not delivered until after 24 weeks, to be classified as miscarriages, the implication of being that they do not require registration.

Diagnosis

An appropriately trained person should make the diagnosis. A second opinion should be obtained if practically possible. Ideally the diagnosis should be confirmed by the presence of a second observer. The diagnosis of IUD should be made using real time ultrasound and should be available at all times. If patient wishes repeat USS should be offered.

Secondary features of IUD include
- Collapse of fetal skull and overlapping bones (Spalding’s sign)
- Maceration resulting in unrecognisable tissue
- Hydrops
- Intra foetal gas

Auscultation and CTG are unreliable and should not be used for diagnosis
FSE monitoring is unreliable and should NOT be used to confirm or support the diagnosis

Communication

Parents should be told in the appropriate surroundings. If alone, offer to call partner, family or friends
Parents may need time to absorb any information
The diagnosis is often unexpected and sudden and this needs to be taken into account
Empathy is critical
Explanations should be short and concise and parents should be offered written information to supplement the discussions
Show the USS to the parents if they wish

Isoimmunisation prevention

IT IS CRITICAL TO DETERMINE THE BLOOD GROUP OF THE FOETUS AND CORD BLOOD SHOULD BE OBTAINED FOR THIS REASON

If the Mother is known to be Rh NEGATIVE, they should be advised to take blood for Kleihauer testing urgently to see large FMH that might have been occurred. Done as soon possible as abruptio is an important cause of sudden IUD.
Anti-D should be administered at the earliest after presentation. If there is large FMH the Anti-D dose should be adjusted and Kliehauer should be repeated at 48 hours to ensure fetal red cells have cleared. Anti-D provides reduced benefit when given beyond 72 hours, up to 10 days after the sensitising event.

**Mode of delivery and timing**

Parents and family may need time to accept the diagnosis. Delivery will need to be addressed and there are many considerations.

**Timing**:
The woman should be allowed to return home if she wishes with a planned date for induction.

If there is any evidence of bleeding, infection, PET, ruptured membranes or abruption delivery should not be delayed.

Women should be advised that they are unlikely to come to physical harm if they delay labour for a short period, but may develop severe medical complications and greater anxiety with prolonged intervals.

Prolonged delay results in reduced quality post mortem findings due to alteration of the appearance of the fetus (maceration).

If delayed > 48 hours the mother should be monitored for evidence of DIC twice weekly.

**Mode of delivery**

Vaginal birth should be the aim to reduce risks for future pregnancies. It also reduces the length of stay and time spent on a postnatal ward (90% of women will deliver within 24 hours of IOL).

Caesarean section can be considered in some circumstances:

- Placenta praevia, greater than 2 previous caesarean sections, psychological reasons and if indicated, should be discussed with a consultant.

**IOL see flowchart**

Women may find the process emotionally disturbing and stressful. Reassurance will be required through one to one care when possible. The following regime is based on published evidence and is aimed at achieving a vaginal birth in order to minimise complications in future pregnancies.

A combination of mifepristone and prostaglandin preparation should usually be recommended as the first-line intervention for IOL.

Misoprostol can be used in preference to PG E2 due to its equivalent safety and efficiency with lower cost.

Women advised that vaginal misoprostol is as effective as oral therapy with fewer side effects. (diarrhoea, vomiting, shivering, pyrexia)

- **Day 1:** oral 200mg Mifepristone
- **Day 3:** PV (break tablets in half)100mcg 4hrly X 4 doses.

Syntocinon augmentation should be a consultant decision.
IMPORTANT POINTS:

Ensure regular analgesia
Regional analgesia and PCA should be available to women with an IUFD.
DIC and sepsis should be ruled out before regional analgesia
Diamorphine should be used in preference to pethidine
Regular paracetamol as misoprostol can cause temperature rises
DO NOT rupture membranes to prevent CHORIOAMNIONITIS
If the patient finds it too distressing to wait or in the presence of infection or bleeding Misoprostol can be given following the first dose of Mifepristone but this may prolong the induction to delivery interval

*If previous uterine surgery, IOL should be discussed with a consultant.
Women with one single scar should be advised that, in general, IOL with prostaglandin is safe but not without risk. Use routine IOL regime
Women with 2 previous LSCS should be advised that in general the absolute risk of IOL with prostaglandin is only a little higher than for a women with single previous scar.
Women with > 2 LSCS or atypical scars should be advised that the safety is unknown.
Syntocinon augmentation should be a consultant decision.

Antibiotics

Prophylaxis for GBS is not required if pt is known to be GBS
Antibiotics are not required unless there is evidence of infection

Thromboprophylaxis

Standard prophylaxis guidelines should be followed
IUD is not a risk factor

Suppression of lactation

Following delivery, women may begin to lactate and Some find this as extremely distressing if not prepared. Pharmacological suppression of lactation with a dopamine agonist may not be necessary in all cases
1/3 of women who choose non pharmacological measures are troubled by excessive discomfort
This should be discussed with the patient. Good support and advice with conservative measures may be sufficient

Conservative measures:
Good breast support
Ice packs
NSAIDS
Cabergoline is superior to bromocriptine.
Cabergoline is an ergot derivative; it should not be used if there is a history of PET or a strong F/H of CVS disease or thromboembolic disease

1mg Carbergoline STAT during the first day post partum before lactation begins
250mcg 12 hourly for two days if lactation has begun
Bromocriptine (2.5mg BD) X 14 days.

Investigations

As many investigations as possible should be taken while in hospital, to minimise the need to return, which the women may find distressing. They should be explained the need for each tests. Following should be considered:
FBC

Kleihauer test
Blood group and antibody screen
Coagulation and fibrinogen (abruption, DIC)
HbA1C if known diabetes, random blood glucose if not
Urea and Electrolytes
Liver function tests
Bile acids
TFT’s (occult thyroid disease)
CRP, Blood cultures (sepsis)
Maternal and Paternal blood for karyotyping
Syphilis / Parvovirus / CMV / Toxoplasmosis / Rubella serology
Thrombophilia screen only after 12 weeks postnatal
Anti-red cell Ab (hydrps)
Anti-Ro abd anti-La Ab (hydrps, endomyocardial fibro-elastosis or AV node calcification on PM)
Alloimmune anti-platelet Ab (fetal intracranial haemorrhage on PM)
Urine culture
Urine toxicology if indicated in suspected drug use (consent needed)
High vaginal swab
Cervical swabs
Placental swab
Placental histology
Fetal blood for culture
Fetal skin swabs for culture
Fetal skin biopsy / placental biopsy for karyotyping (NOT FIXED IN FORMALIN)
Post mortem

Consent for post mortem (PM)
Parents should be offered a full post-mortem examination to help explain the cause of IUFD.
40% of post-mortem cases find a cause for otherwise unexplained losses and even in the presence of a diagnosis of fetal abnormality, post mortem finds new and further findings in 25% of cases

Appropriately trained and registered clinicians should only take consent
Attempts to persuade parents to choose PM must be avoided; individual, cultural and religious beliefs must be respected.
Parents should be offered a description of what happens during the procedure and the likely appearance of the baby afterwards and the funeral arrangements.
Discussions should be supplemented by the offer of a leaflet
Parents who decline post-mortem should be offered limited examination
Pathological examination of the cord membranes and placenta should be recommended whether or not PM examination is requested or not

Support and follow up

Use the checklist for investigations and procedure/checklist for midwives to make sure all paper work is been complete before the discharge of women
Follow up should be continuous but not forced. Parents should be given contacts for all appropriate specialists including:

Community midwife
GP should be informed
Bereavement midwife
Obstetric Consultant follow up and secretary contacts
Help groups e.g. SANDS
It is not possible to predict how parents will deal with the tragic news of a stillbirth. There are no predictors. Each case should be treated individually.

Future pregnancy

This should not be discussed at the time of delivery or discharge.
Decisions will be made depending on the pending results of any investigations and after discussion with the patient in clinic.

Future pregnancies, it is good practice for reassurance, to have a neonatologist present for a baby check post delivery. Parents will need extra reassurance that this baby is fit, well and healthy.

Legal Clarification

Only deaths after 24 weeks need to be registered
Losses before 24 weeks are not recognised by registration, this does not mean that parents cannot make funeral arrangements, as they should wish.

The death certificate is required for the parents to register a death after 24 weeks. It must be completed and signed by a Doctor.
- Date ad sign in the correct places
- Do not guess at the cause of death, it is difficult to change later
- Do not use abbreviations
- Write clearly
- Include GMC number and qualifications

Incomplete forms will delay the registration of the death. This causes unnecessary upset for the grieving parents. Under the law, the coroner does not have any jurisdiction over the cases of foetal loss including those intra partum. They should not be contacted or involved in these cases.

References:
1. BNF
4. RCOG Guideline No. 55 Oct 2010
5. Medical Management of late intrauterine death using a combination of Mifepristone and Misoprostol. Wagaarachchi et al BJOG 2002
**Induction of Labour**

*If previous uterine surgery, discuss with consultant (see VBAC guideline)*

**Standard Regimen**
- Day 1: 200mg Mifepristone orally
- Day 3: Admit to LW
  - 100mcg Misoprostol
  - PV (break tablet into ½) then 4 hrly PV (4 doses max)

In event of infection or patient too distressed to wait, Misoprostol can be given after the first dose of Mifepristone.

Vaginal tablet helps to reduce the side effects.

**Support and Follow Up**
- Give appropriate support
- Complete M/W checklist
- Inform GP
- Bereavement midwife
- Support Groups e.g. SANDS

Review in clinic arranged only after all investigation results including post-mortem report is available and after liaising with the Consultant as most prefer to see them either in GOPD or office.

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**Legal**

- Only deaths after 24 weeks need to be registered
- Death certificate is a legal requirement
- Be thorough as incomplete forms will delay registering the day leading to unnecessary parental distress
- There is no indication to contact the coroner – they have no jurisdiction over foetal loss

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**Secondary features**
- Collapse of foetal skull
- Hydrops
- Intra-foetal gas

**Discussion with family regarding mode of delivery**

Vaginal delivery is preferred option.

C section considered if:
- Placenta Praevia
- More than 2 previous sections

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**Discussion with family regarding timing of delivery**

IOL can be safely delayed for 24-48 hours as long as no evidence of:
- PET/DIC
- Bleeding/Abruption
- Uterine rupture
- SROM/Infection

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**IUD**
- Confirmed on USS by appropriately trained medical professional
- Rpt USS if necessary
- Inform Cons on call

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**If Mother is Rh negative, do Kleihauer test and Give Anti-D ASAP**

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**If previous uterine surgery, discuss with consultant (see VBAC guideline)**

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**Remember**

**Analgesia**

- Regular analgesia
- Diamorphine better than pethidine
- Epidural on Labour Ward

**Antibiotics**: Not indicated unless infection

**Lactation**

- Can be suppressed with Carbegoline (CI in HT, PET, Embolic disease)
- 1mg stat day 1 PP before lactation begins
- 250mcg BD for 2/7 if lactation has begun
- Bromocriptine (2.5mg) X 14 days

**Relevant Investigations**

1. Foetal blood and skin swabs for culture – Inform patient of the reason for these tests and implications of the potential findings
2. Informed consent should only be obtained by a trained and registered clinician
3. Don’t forget – date and sign, no abbreviations, do not guess at cause of death (difficult to change at a later date), write clearly, write GMC number and qualifications

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**Page**: 65

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