Aneurin Bevan University 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 This is to avoid the risk of out of date printed versions of the document.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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Contents:

1 Policy Statement

This document should act as a guideline for the management of all patients in labour. The views expressed in these guidelines are evidence based on Royal College of Obstetrics and Gynaecology, 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 Equality Audit & Review

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.

6 Index

7 Diagnosis and Management of Labour:

7.1Diagnosis 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).

Initial assessment by midwife and registrar (MDU)/career SHO with full history, identifying risk factors by reviewing clinical records with physical observations of temperature, pulse, respiratory rate, blood pressure and urinalysis.

To start on continuous electronic fetal monitoring in accordance with clinical need for all Obstetric led care patients (OLC) in MDU
One to one care with midwife
MW/ doctor to gain IV access, bloods for FBC, group and antibody screen in all women under OLC
Baseline clotting screen should be requested in all high-risk patients with risk of bleeding
Ring the blood bank and porter to state as urgent bloods and document this in the notes

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
Remifentanyl is available at The Grange University Hospital
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 siting epidural, **ensure continuous fetal heart monitoring is carried out, if necessary by use of fetal scalp electrode prior to siting the epidural**

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 cervical dilatation
Where the partogram includes an action line, the World Health Organization recommendation of a 4-hour action line should be used
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, respiratory rate urine analysis (changes as per clinical needs)

Palpate the pulse hourly to differentiate between the maternal and fetal heartbeats

Vaginal examination to be offered every four hours to assess progress of labour, provided contractions are regular unless clinically indicated Examinations are carried out after obtaining verbal consent from the woman.

Continuous CTG monitoring for all obstetric led care patients based on clinical need

Any deviation from the above plan should be discussed with Obstetric Registrar/Consultant and should be documented

7.7 Second stage of Labour

Regular observations- hourly blood pressure, half hourly maternal pulse rate and four hourly temperatures (changes as per clinical needs) and five-minute fetal heart rate
Regularly check and document frequency of bladder emptying
Assess progress hourly by vaginal examination
Ensure manual perineal protection (to prevent OASI) to all Perform 60° mediolateral episiotomy if concerned risk of significant/extensive tear
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 an option of regional analgesia after full assessment
Maximum active second stage can last 3 hours in 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
Do not start oxytocin without thorough assessment and senior input

7.8 Third Stage of Labour

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

Physiological management

Oxytocic drugs should not be used, and the cord should not be clamped and cut until it has stopped pulsating. There should be no cord traction.

Women should be informed that with physiological management the incidence of:-

- Nausea/vomiting is 50 in 1000 women
- PPH more than 1L is 29 in 1000 women
- Blood transfusion is 40 in 1000 women

Active management

The cord should not routinely be clamped and cut before one minute unless there is fetal distress
If the woman requests that the cord is clamped and cut later than five minutes, support her in her choice
An uterotonic agent (Syntocinon 10iu IM) is administered
The placenta is delivered by controlled cord traction

Women should be informed that active management of the third stage shortens the third stage and that the incidence of:-

- Nausea/vomiting is 100 in 1000 women
- PPH more that 1L is 13 in 1000 women
- Blood transfusion is 14 in 1000 women

Observations of the woman include general physical condition by her colour, respiration and women's own report of how she feels and vaginal blood loss
Full set of observations as pulse, respiratory rate, BP and temperature should be performed immediately after the third stage. Documentation on contractility of uterus and lochia should be done
In the presence of haemorrhage, retained placenta or maternal collapse frequent observations (every 5 – 10 minutes or continuous monitoring) to assess the need of resuscitation are required

Measurement of blood loss is done by weighing all the swabs, linen, draw sheets, inco pads and measuring the blood clots

7.9 Delayed cord clamping

1. ***Clamping of the umbilical cord should be delayed for at least 60 seconds after every delivery unless there are contraindications:***
   - postpartum haemorrhage,
   - placenta praevia,
   - morbidly adherent placenta,
   - placental abruption,
   - vasa praevia,
   - tight nuchal cord,
   - concerns with integrity of the cord

   -poor condition of neonate at delivery requiring immediate assessment and resuscitation. Rapid milking of the cord (three times) could be considered in these cases.

2. It is recommended to perform delayed cord clamping in preterm deliveries without fetal compromise. Practice should be discussed with the attending paediatrician

3. Uterotonics should be given as usual.

4. Keep neonate warm and at a lower level than the level of the uterus (for deliveries under 28 weeks gestation the neonate should be placed in a sterile plastic bag to ensure temperature control)

5. Record duration of interval between delivery and clamping of the cord on the delivery proforma. Reasons for deviating from the recommendations of delayed cord clamping should be documented for audit purposes

6. Where there is need for substantial cord blood samples (eg. stem cell harvesting) a plan for timing of cord clamping should be discussed with mother and documented

7.10 Perineal repair

Repair of perineum should be undertaken as soon as possible to minimise the risk of infection and blood loss Adequate effective analgesia with either

- infiltration of 1% lignocaine at a maximum dose of 3 mg per kilogram body weight

Body weight > 33kgs (10 mls 100 mg)
Body weight > 50 kgs (15 mls 150 mg)

Body weight > 66 kgs (20 mls 200 mg
(SEE APPENDIX 1 lignocaine toxicity)
- epidural top up should be considered
Rectal non-steroidal anti – inflammatory should be offered routinely following perineal repair unless contraindicated
Document in the perineal repair proforma
Measurement of blood loss is done by weighing all the swabs, linen, draw sheets, inco pads and measuring the blood clots

7.11 Fetal Heart Monitoring in First Stage of labour

Offer intermittent auscultation of the fetal heart rate to women at low risk of complications in established first stage of labour:

Use either a Pinard stethoscope or doppler ultrasound

Carry out intermittent auscultation immediately after a contraction for at least 1 minute, at least every 15 minutes, and record it as a single rate

Record accelerations and decelerations if heard

Palpate the maternal pulse hourly, or more often if there are any concerns, to differentiate between the maternal and fetal heartbeats

If no indication for immediate continuous fetal monitoring, consider mobilisation and intelligent intermittent auscultation

Continuous EFM is recommended when:

- Obstetric led care women in accordance with clinical need
- Women who have exited the low-risk pathway
- Meconium-stained liquor (significant)

(*Continuous EFM should be considered for women with light meconium-stained liquor depending on a risk assessment which should include as a minimum their stage of labour, volume of liquor, parity, the FHR) If in doubt consult with obstetrician.

7.12 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 in the manual CTG monitor)

- STAN should be considered and used in all high-risk women > 36/40
- Pinnard should be utilised to confirm the presence of a feta heart prior to CTG USS.
- Any antenatal/intrapartum events that may affect the FH rate should be noted contemporaneously on the CTG electronically and in the maternal notes, signed and the date and time noted (VE's, siting of an epidural etc).
- The fetal heart should be documented on the partogram
- On initial assessment ensure checklist completed to exclude chronic hypoxia and pre-existing fetal injury (see figure 1)
- On reviewing CTG, use CTG stickers for classification as per FIGO guideline and document clearly with plan of action in maternal notes
- Fresh eye review of CTG by another midwife/obstetrician (not GP trainee) every hour and use CTG assessment tool (see figure 2)
- When categorising CTG according to FIGO Fetal heart traces should be categorised into normal, suspicious and pathological according to categorisation criteria
- If it is difficult to categorise or interpret a cardiotocograph trace, obtain a review by a senior midwife or a senior obstetrician

Figure 1

Checklist to exclude chronic hypoxia and pre-existing fetal injury			
1	Baseline fetal heart rate appropriate for gestation	Yes	No
2	Normal variability and cycling	Yes	No
3	Presence of accelerations (not in labour or latent phase of labour)	Yes	No
4	No shallow/ late decelerations	Yes	No
5	Consider the wider clinical picture: meconium, temperature, fetal growth, reduced fetal movements	Yes	No
Overall Impression: Normal / Chronic Hypoxia / Other:			
Management Plan:			

Figure 2

CTG Assessment Tool							
Baseline	bpm	Variability	bpm	Accelerations		Decelerations	
Rise in Baseline (≥ 10%)				Yes		No	
Maintained Cycling				Yes		No	
Abnormal Variability (<5 or >25)				Yes		No	
Features of Hypoxia				Yes		No	
Type							
Central Organs well oxygenated				Yes		No	
Other risk factors noted							
Recommended Management							

CTG classification

2015 revised FIGO guidelines on intrapartum fetal monitoring

	Normal	Suspicious	Pathological
Baseline	110-160 bpm	Lacking at least one characteristic of normality, but with no pathological features	< 100 bpm
Variability	5-25 bpm		Reduced variability. Increased variability. Sinusoidal pattern.
Decelerations	No repetitive* decelerations		Repetitive* late or prolonged decelerations for > 30 min (or > 20 min if reduced variability). Deceleration > 5 min
Interpretation	No hypoxia/acidosis	Low probability of hypoxia/acidosis	High probability of hypoxia/acidosis
Clinical management	No intervention necessary to improve fetal oxygenation state	Action to correct reversible causes if identified, close monitoring or adjunctive methods	Immediate action to correct reversible causes, adjunctive methods, or if this is not possible expedite delivery. In acute situations immediate delivery should be accomplished

*Decelerations are repetitive when associated with > 50% contractions.
Absence of accelerations in labour is of uncertain significance.

STAN Guidelines

ST Analysis is used

- More than 36 gestational weeks
- Ruptured membranes
- No contraindication for scalp electrode
- At first stage with normal CTG

For STAN analysis CTG should be categorised as per FIGO classification abnormal, intermediary, abnormal or preterminal according to classification criteria

At onset of ST event

-Check for reactivity and non-deteriorating fetal state: classify CTG
-Check ECG signal quality
-Use FIGO classification for CTG interpretation and manage accordingly
If any concerns discuss with senior Obstetricians
During 2nd stage of labour with active pushing, immediate delivery should be considered in 15-20 minutes.
- In the presence of maternal pyrexia even intermediary CTG may be regarded as significant with ST event

FIGO STAN CTG Interpretation & St Analysis				
Feature	**Baseline**	**Variability**	**Deceleration**	**ST Event**
Normal	110-150	5-25 Accelerations	Early or uncomplicated variable-<60 beats &60 sec	Expectant Mx
Intermediary	100-110 150-170 Bradycardia <100bpm for ≤ 3 min	<5 for 40 min or >25bpm	Uncomplicated Variable decelerations for > 60 bts & <60 sec	Episodic >0.15 Baseline >0.10 Biphasic-2
Abnormal	>170 or Bradycardia <100 bpm for > 3 min	<5 for ≥ 60 min or sinusoidal	Complicated Variable dec for >60 sec Or Repeated Late dec	Episodic >0.10 Baseline >0.05 Biphasic-3
Preterminal	Immediate delivery			

When called to review suspicious/pathological/abnormal CTG
Always consider **MOTHERS**

- **M**econium
- **O**xytocin
- **T**emperature
- **H**yperstimulation/**H**aemorrhage
- **E**pidural
- **R**ate and progress of labour
- **S**car

Classification of CTG			
	Baseline Rate	**Variability and Reactivity**	**Decelerations**
Normal CTG	• 110 – 150 bpm	• Accelerations • Variability 5 - 25	• Early uniform decelerations • Uncomplicated variable decelerations with duration < 60s and loss of < 60 beats from Base rate
Intermediary CTG	• 100 – 110 bpm • 150 – 170 bpm • Decelerations < 100 bpm for ≤ 3 minutes	• > 25 bpm (Saltatory pattern) • < 5 bpm > 40 min with absence of accelerations	• Uncomplicated variable decelerations with duration of < 60s and loss of > 60 beats
	The combination of several intermediary factors results in an abnormal CTG		
Abnormal	• 150 – 170 bpm and reduced variability • > 170 bpm • prolonged deceleration < 100 bpm for > 3 minutes	• < 5 bpm for > 60 minutes • sinusoidal pattern	• Complicated variable deceleration with a duration of > 60s • Repeated late uniform decelerations
Pre-terminal	Total lack of variability (<2bpm) and reactivity with or without decelerations		

ST Analysis				
ST Event	**Normal CTG**	**Intermediary**	**Abnormal**	**Pre-terminal**
Episodic T-QRS rise	• Expectant management • Continued Observation	> 0.15	> 0.10	Immediate delivery
Baseline T-QRS rise		> 0.10	> 0.05	
Biphasic ST		3 biphasic log messages	2 biphasic log messages	

7.13 Overall assessment of hypoxia and management

Hypoxia	Features	Management
No Hypoxia	- Baseline appropriate for G.A. - Normal variability and cycling - No repetitive decelerations	- Consider whether the CTG needs to continue. - If continuing the CTG perform routine hourly review. (see CTG Assessment Tool below)
Evidence of Hypoxia		
Chronic Hypoxia	- Higher baseline than expected for gestational age - Reduced variability and/ or absence of cycling - Absence of accelerations - Shallow decelerations	- Avoid further stress - Expedite delivery, if delivery is not imminent
Gradually Evolving Hypoxia	**Compensated** Rise in the baseline (with normal variability and stable baseline) preceded by decelerations and loss of accelerations	- Likely to respond to conservative interventions (see below) - Regular review every 30-60 minutes to assess for signs of further hypoxic change, and that the intervention resulted in improvement. - Other causes such as reduced placental reserve MUST be considered and addressed accordingly.
	Decompensated • Reduced or increased variability • Unstable/ progressive decline in the baseline (step ladder pattern to death)	- Needs urgent intervention to reverse the hypoxic insult (remove prostaglandin pessary, stop syntocinon infusion, tocolysis) - Delivery should be expedited, if no signs of improvement are seen
Subacute Hypoxia	- More time spent during decelerations than at the baseline - May be associated with saltatory pattern	**First Stage** - Remove prostaglandins/stop syntocinon infusion - If no improvement, needs urgent tocolysis - If still no evidence of improvement within 10-15 minute, review situation and expedite Delivery **Second Stage** - Stop maternal active pushing during contractions until improvement is noted. - If no improvement in noted, consider tocolysis if delivery is not imminent or expedite delivery by operative vaginal delivery
Acute Hypoxia	- Prolonged Deceleration (> 3 minutes)	**Preceded by reduced variability and lack of cycling or reduced variability within the first 3 minutes** Immediate delivery by the safest and quickest route **Preceded by normal variability and cycling and normal variability during the first 3 minutes of the deceleration** **(see 3-minute rule above)** - Exclude the 3 accidents - Correct reversible causes - If no improvement by 9 minutes or any of the accidents diagnosed, immediate delivery by the safest and quickest route
Unable to Ascertain fetal wellbeing		- Escalate to senior team - Consider Adjunctive Techniques, if appropriate - Consider the application of FSE to improve signal quality

SUSPICIOUS or PATHOLOGICAL classification of CTG	Use conservative measures • Left lateral position • IV fluids (if appropriate) • Paracetamol if raised temperature • Stop Oxytocin • Give Terbutaline 0.25 mg SC • Do not use maternal facial oxygen therapy for intrauterine fetal resuscitation • Oxygen should only be administered for maternal hypoxia, or as part of preoxygenation of the mother prior to a potential anaesthetic

If **hyperstimulation** – give Injection of Terbutaline 250µgm subcutaneously or IV Terbutaline 10µgm/min or GTN aerosol spray (400µgm/metred dose) – 1-2 doses under the tongue or GTN sublingual tablets (300µgm tablet- 1 to 2 tablets – single dose)

MECONIUM-STAINED AMNIOTIC FLUID (MSAF)

Passage of meconium is usually secondary to the physiological maturation of the fetal gut. However, underlying maternal, placental and fetal pathological causes of meconium passage should be excluded Chronic utero-placental insufficiency and chorioamnionitis are important causes Meconium Aspiration Syndrome (MAS) is associated with serious perinatal morbidity and mortality.

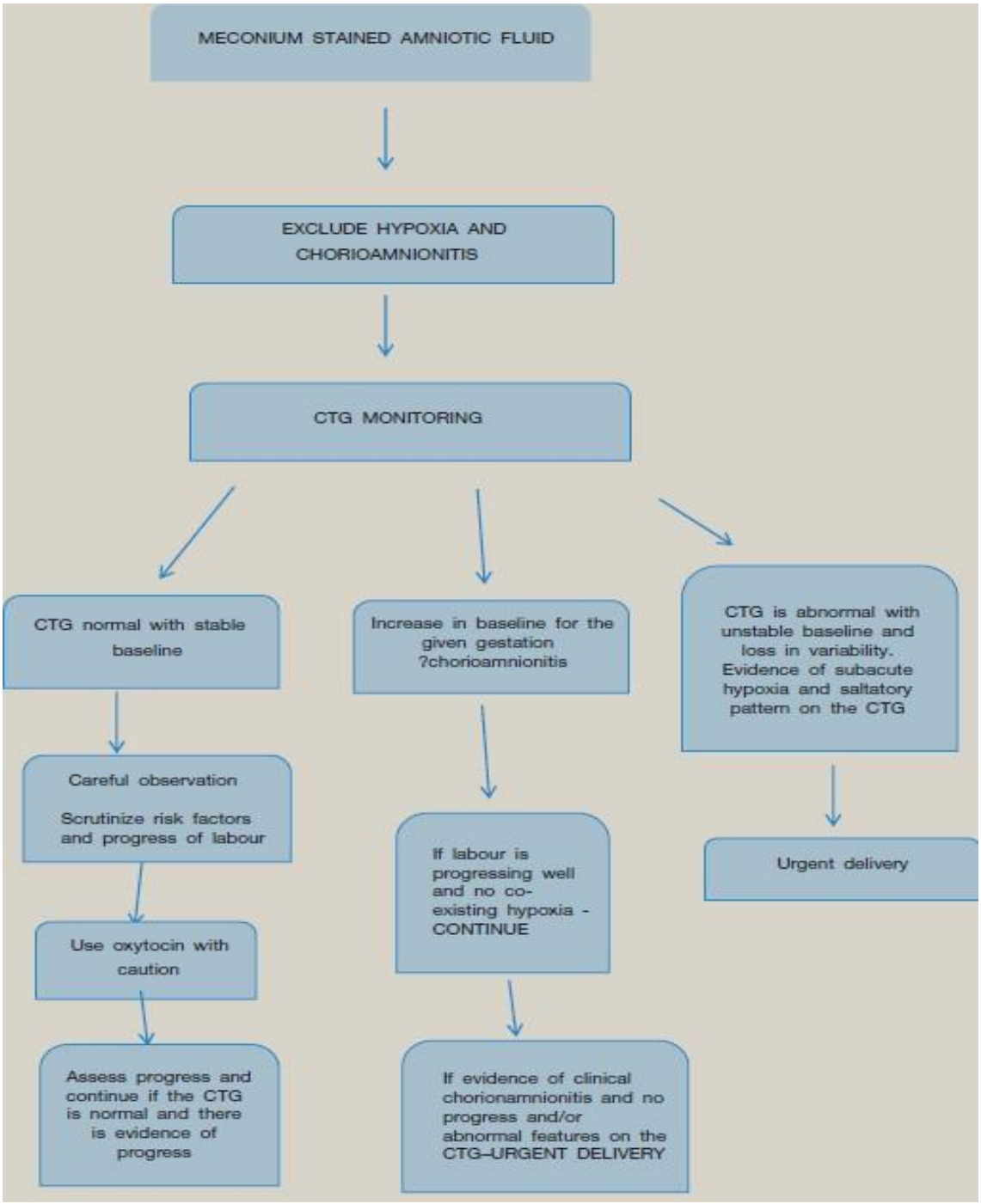
Higher than expected baseline FHR for the given gestation, repetitive atypical variable decelerations, loss of baseline variability, saltatory pattern, subacute hypoxia and fetal bradycardia may increase the risk of MAS

Oxytocin should be used with caution in the presence of MSAF

Overall clinical picture such as parity, rate of progress of labour, features on the CTG and ongoing chronic hypoxia or infection should be considered

The neonatal team should be informed of MSAF to ensure appropriate assessment and resuscitation of the new-born

MANAGEMENT OF MECONIUM-STAINED AMNIOTIC FLUID (MSAF)



Infants born through Meconium – Postnatal Management Guideline

Introduction

Meconium-stained liquor occurs in up to 10% of deliveries – approximately 2% of these babies (0.2% of total births) develop meconium aspiration syndrome (MAS). It is possible that symptoms associated with meconium aspiration will not appear immediately. So it is recommended that babies

born through meconium-stained liquor are observed for a period of time in all birth settings

Definition

Light meconium-stained liquor (MSL) is defined as a thin greenish/yellow-tinged fluid. **Significant** MSL is defined as dark green or black amniotic fluid that is thick or tenacious, or any meconium-stained amniotic fluid containing lumps of meconium. This guideline provides information to personnel caring for infants born to mothers who have had meconium stained liquor during labour and thus are at increased risk of developing meconium aspiration syndrome.

Delivery Room Management

A doctor or ANNP should attend the delivery if there is significant MSL. A doctor or ANNP should attend the delivery if there is light MSL and an additional sign of fetal compromise. Stabilisation of the infant is in line with NLS guidance and is not the focus of this document. If the infant has respiratory distress from birth or requires resuscitation, then NICU management is indicated. If the infant has no respiratory distress and no oxygen requirement from birth, then manage as below.

Light MSL

Light MSL does not necessarily trigger any change of care pathway for the mother. MLC can continue; this judgement will be made by those managing the mother. The infant should have observations using NEWTT chart at 1 hour and 2 hours of age. These can be performed in any setting. If normal at 2 hours, no further observations are required and revert to normal newborn baby care. If observations outside normal range, refer to neonatal team.

Significant MSL

Observations using NEWTT chart at 1 hour and 2 hours and 2 hourly until 12 hours of age. If normal at 12 hours, no further observations and revert to normal newborn baby care. If observations outside normal range, refer to neonatal team.

References

Newborn babies born to Mothers with Meconium Stained Liquor. Norfolk and Norwich University Hospital NHS Foundation Trust. 2020

Guideline for the Intrapartum and Immediate Neonatal Management of Meconium Stained Liquor. Cwm Taf Morgannwg University Health Board Obstetric and Gynaecology Directorate. 2020

National Institute for Health and Clinical Excellence. Intrapartum care for healthy women and babies 2014 (last updated Feb 2017)

7.14 Fetal Blood Sampling

Do not perform FBS (no evidence to support this practice)

7.15 Regimen for Syntocinon Infusion

Syntocinon is normally added to normal saline even in hypertensive women (**30 IU of Oxytocin is added to 500ml of Normal Saline 1ml/hour = 1 milliunits per minute**)
Administration is via appropriate pump and giving set

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. When achieved effective uterine contractions, consider reducing the dose of Syntocinon.
Contractions should not be more than 3-4 in 10 minutes and should not last longer than 60 seconds. The uterus should relax adequately between contractions

Time after starting in minutes	Oxytocin Dose (mU/min) Dilution 30iu oxytocin in 500mls normal saline	Volume infused (mls/hour)
0	1	1
30	2	2
60	4	4
90	8	8
120	12	12
150	16	16
180	20	20
210	24	24
240	28	28
270	32	32

If no adequate contractions have been achieved at 20 mls per hour discuss with Registrar and/or Consultant

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

7.16 Cord Blood Gases/Sampling

All women under obstetric led care **should** have cord blood sampling but it is obligatory:

- after instrumental deliveries
- after emergency CS
- if baby's condition is poor at delivery

Women who have an elective caesarean section do not require cord blood sample unless at birth the 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 preheparinised tube. NB: the specimen remains stable at room temperature for up to 1 hour. However, please process the sample at the earliest. If there is a delay, record time samples taken and time sample processed. Consider refrigerating immediately if significant delay and perform when able.

Interpretation: Values of Arterial Ph <7.00 should generate a neonatal review and all should be reported via datix for risk management

References: Physiological CTG Interpretation, Intrapartum Fetal Monitoring Guideline November 2017
Meconium stained amniotic fluid, Edwin Chandraharan and Sian Mitchell, 2018

8 Guidelines for the care of 'un-booked 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
- Look in CWS and CSC for information
- A brief relevant history should be taken, to include previous pregnancies, deliveries, medical and family history

- Examination including;

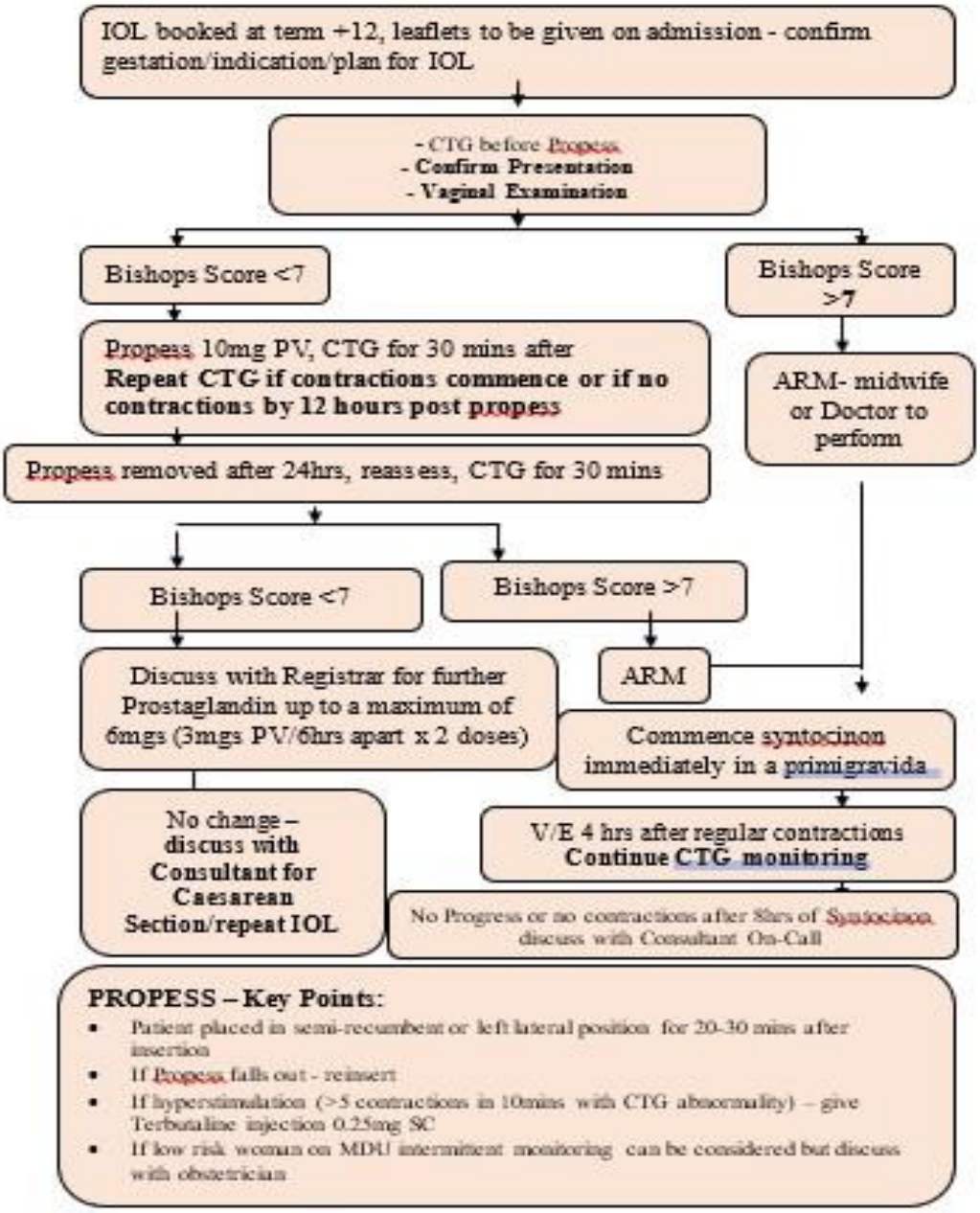
- Temperature, pulse, blood pressure, respiratory rate
- Abdominal palpation
- Fetal heart auscultation/CTG
- Scan for placental localisation
- If placenta clear, for vaginal examination

Blood should be taken for

- Group and antibody screen – 2 samples (long, pink-topped bottle)
- FBC (purple topped bottle)
- Treponemal antibody test (orange/yellow bottle)
- Routine antenatal virology screen (Hep B, HIV) (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 see Hepatitis B policy
- Inform the Obstetrician and anaesthetist regarding admission
- USS performed if feasible for placental localisation and presentation
- 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

Induction of Labour (IOL) without uterine scar



Previous LSCS (up to x2)

Patient's Obstetrician to decide on timing of induction (consider term+12 IOL) and amount of prostaglandins to be used

Patient to be fully informed of risks including scar dehiscence and rupture – ensure documented in patient's notes

Consider Propess (unlicensed) with informed consent as it is safer than Prostin

Consider Dilapan-S / Dilasoft

Once the contractions are regular commence continuous fetal monitoring and if feasible transfer the patient to the labour ward

IOL for intrauterine growth restriction (IUGR)

Please perform CTGs 8 hourly during the induction process and consider continuous monitoring once contractions are regular

IOL for PROM and SROM

Consider propess (unlicensed) with informed consent as it is safer than prostin as it reduces repeated examination and can be removed if there is foetal distress

Consider immediate induction with propess if primip and cervix unfavourable

Reference: NICE Clinical guideline No- 190, Intrapartum care for healthy women and babies; 3/12/2014

10 Management of women with previous Caesarean Section in labour

Information for Staff

- 25% of women attempting a VBAC will need an emergency caesarean delivery in labour
- 0.2 to 0.7% (22-47/10000) risk of scar rupture with one previous LSCS
- 1.36% risk of scar rupture with two previous LSCS
- Risk of scar rupture is 2% with inverted T or J incision
- Risk of scar rupture with induction -2-to-3-fold increase
  - Non prostaglandin agents – 89 per 10000 (0.89%)
  - Prostaglandins 140 per 10000 (1.6%)
- Overall success rate for VBAC is 72 to 76%
- Planned VBAC compared with ERCS carries around 1% additional risk of blood transfusion or endometritis and 2-3/10000 additional risk of birth related perinatal loss

Labour and Birth (VBAC)

1. Labour is managed to optimise a normal outcome
2. Delivery is planned at an obstetric unit with availability of obstetric theatre and onsite blood transfusion. Should the woman decline, involve the consultant midwife to evaluate clinical risk
3. IV Access with FBC and Group and Antibody screen (ensure electronic issue)
4. One to one care with midwife
5. Continuous CTG monitoring following the onset of uterine contractions for the duration of planned VBAC is advised (fetal distress has been reported to precede uterine rupture)
6. Meticulous monitoring of progress of labour
7. Serial cervical assessments should be preferably done by the same person if possible
8. Decision to augment with oxytocin, time intervals for serial vaginal examination, decision of discontinuing VBAC should be consultant led decisions
9. Oxytocin augmentation should be titrated such that the contraction frequency would not exceed 4 in 10 minutes. Once the adequate contractions achieved try reducing the syntocinon dose
10. Concerns with progress of labour should be reported to on call registrar on labour ward
11. The use of Syntocinon to augment poor progress or secondary arrest must be discussed with the consultant
12. Strength of Syntocinon in VBAC is identical to the normal induction and augmentation (same protocol see earlier)
13. Epidural analgesia is available on request
14. Regular maternal observations including BP, Pulse, respiratory rate and Temperature
15. Awareness of classical symptoms of scar rupture –
    - abnormal CTG,
    - severe abdominal pain if persisting between contractions
    - acute onset of scar tenderness
    - Chest pain or shoulder tip pain or sudden onset of shortness of breath
    - abnormal vaginal bleeding
    - maternal tachycardia, hypotension or shock
    - loss of station of the presenting part
16. Post-partum scar palpation not required
17. Involve and explain to the patient with the decisions made during labour

Post-natal care after emergency caesarean section

1. Doctors and midwives should discuss pregnancy and labour events with each woman, the reasons for her CS and her suitability of VBAC and implications for future pregnancy. This should be recorded in the clinical notes
2. Review the patient before they leave the postoperative support ward and document in the clinical notes

References

1. 'Birth after previous caesarean birth' Green top guideline No45 RCOG 2015
2. NHS Institute for Innovation and Improvement 2006 Delivering Quality and Value Focus on: Caesarean Section DH, London
3. Saving Mothers Lives the seventh report of the Confidential Enquiries into Maternal Deaths in the United Kingdom. CEMACH London: December 2007
4. Nice Guideline Caesarean Section Guideline 13 2004
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NICE guideline Intrapartum Care 2007

11 PRE LABOUR-RUPTURE OF MEMBRANES (PROM)

Diagnosis

- Record the accurate time of PROM, colour of liquor
- Perform maternal temperature, pulse, BP, RR and urinalysis
- CTG
- Confirm the evidence of liquor draining
- If no evidence of liquor draining – perform speculum examination to confirm PROM
- If in doubt, perform ROM plus test and consider USS for liquor volume if necessary
- Immediate IOL may be offered depending on labour ward and antenatal ward activity
- Primip with unfavourable cervix consider immediate IOL with propess to avoid prolonged ruptured membranes
- >24 hours, to deliver in hospital with access to neonatal unit and stay in hospital for >12 hours
- IV antibiotics not required unless choriamnionitis/ GBS+

- Risk of neonatal infection is 1%

11.1 MANAGEMENT OF PROM >37 WEEKS

IMMEDIATE IOL	EXPECTANT MANAGEMENT

• Chorioamnionitis
  Maternal pyrexia
  Maternal tachycardia
  Leucocytosis
  Uterine tenderness
  Offensive vaginal discharge
  Fetal tachycardia
	• Patient allowed to go home with information sheet, thermometer to record temperature
	• To check temperature at home 4 hourly during waking hours

• Antenatal history of GBS • Meconium-stained liquor • Signs of fetal compromise • Any other obstetric risk factors • Maternal request (depends on labour ward occupancy) • Offer IOL (depends on labour ward occupancy)	• If temperature >38°c or >37.5°c on 2 occasions ≥2 hours apart and feeling unwell should to return to hospital • IOL after 24 hours • Prophylactic antibiotics if risk factors present as per guideline

11.2 *PRE TERM PRE LABOUR RUPTURE OF MEMBRANES (PPROM) <37 WEEKS*

- Perform speculum examination under aseptic technique to assess the cervix and take an 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 250mg QDS for 10 days
- Consider Magnesium sulphate if <34 weeks in preterm labour
- Inform SCBU
- After discussion with consultant, consider delivery from 37 weeks
- Consider propess – 10 mg (unlicensed) with informed consent as it is safer than prostin as it reduces repeated examination and can be removed if there is foetal distress
- Give prophylactic antibiotics in labour
- Avoid ventouse delivery before 34 weeks
- All transfers– inform the consultant

11.2 Corticosteroids

Dose: Betamethasone 12mg IM – 2 doses 24hrs apart

or

Injection of Dexamethasone 6mg IM – 12hrs apart for 4 doses

Indications for steroids

- If delivery anticipated between 24 and 33+6 weeks give steroids and consider between 34 and 35+6 weeks
- Steroids at gestation 23-24 weeks – should be decided by the consultant after discussion with the patient
- 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

11.3 Tocolytics

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

First drug of choice:
Nifedipine regime – 20mg of oral Nifedipine (capsule) as loading dose followed by 10-20mg of modified release tablets, three to four times daily, adjusted according to uterine activity up to 48hrs (total dose of 60mg including the loading dose)
For low BMI women –the loading and the maintenance dose is reduced to 10mg

CONTRAINDICATIONS	RELATIVE CONTRAINDICATIONS
• Cardiogenic shock & Aortic stenosis • Severe PET • Intrauterine infection • Placental abruption • Advanced cervical dilatation • Evidence of fetal compromise • Placental insufficiency	• Non reassuring CTG • IUGR • Multiple pregnancy • Mild haemorrhage due to placenta praevia

*****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

11.4 Atosiban

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

Step	Regimen	Injection Rate	Atosiban dose
Bolus	Over 1 min	0.9 ml	6.75 mg
Loading dose	3 hours	24 ml/hour	18 mg/hour (300 mcg/min)
Maintenance dose	Up to 45 hours	8 ml/hour	6 mg/hour (100 mcg/min)

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

11.5.1.1Contraindications to Atosiban

<24 weeks and >33 weeks
PROM>30 weeks
Abnormal FH/CTG
Placenta praevia or abruption
Severe Pre-eclampsia
No data on women with abnormal liver or renal function
(No specific antidote)

References: Preterm labour and birth. NICE guideline (NG25) November 2015

12 PRE-TERM LABOUR

Pre-term is birth of a baby less than 37 weeks of gestational age Painful contractions occurring >1 in 10 mins with cervical effacement and dilatation
Imminent Preterm labour between 24 to 34 weeks give magnesium sulphate regime (see guideline on magnesium sulphate for preterm labour)

13 Guidance on Use of Magnesium Sulphate in Preterm labour

13.1 Indications

Magnesium sulphate should be considered in all women who are at risk of early preterm imminent birth (24-34 weeks)
Administration of magnesium sulphate antenatally to women less than 34 weeks gestation where early preterm birth is planned or definitely expected within 24 hours will help to reduce the risk of cerebral palsy following preterm birth

13.2 Place of Administration

Magnesium sulphate must be administered on Delivery Suite with one-toone midwifery care

This does NOT need to be in HDU

13.3 Timing of Administration

1. In the case of planned delivery before 34 weeks gestation, the bolus should be given four hours prior to delivery and the maintenance infusion continued until birth
2.
3. In spontaneous preterm labour, if delivery is expected within 24 hours (i.e., in established labour), commence magnesium sulphate and continue maintenance infusion until delivery or 24 hours, whichever is sooner
4. If birth before 34 weeks is expected to occur sooner than four hours (e.g., Category 2 or 3 caesarean section or late presentation to hospital with >4 cm dilatation), administer magnesium sulphate as there is still advantage likely from administration within this time
5. Where urgent delivery is necessary because of maternal or fetal compromise (e.g., severe fetal distress or antepartum haemorrhage) then birth should not be delayed administering magnesium sulphate.
6. Magnesium sulphate infusions should not be used during antenatal transfer. If a clinical decision is made to transfer a woman who is receiving magnesium sulphate for neuroprotection, the maintenance infusion should be stopped during the transfer

13.4 Dosage and Administration

Loading dose:

1. Medical staff to administer a loading dose (bolus) of 4g should be given via the Asena Syringe Driver pump over 30 minutes
2. Take a 10ml ampoule of magnesium sulphate (50%) and draw off 8 mls which equates to 4grams of magnesium. Dilute in 12mls of sodium chloride 0.9% which equates to 4grams in 20ml solution Administer via a syringe pump at 40mls per hour which will give the solution slowly over 30 mins

Maintenance Dose:

3. Midwife to commence maintenance infusion immediately following loading dose of 1g/hr (10ml/hr) until delivery or for 24 hours, whichever is sooner

   (Adding 50mls of magnesium sulphate (50%) to the 200mls of 0.9% sodium chloride will provide a 250mls solution. This will contain 25g magnesium sulphate in the 250ml solution equating to a 10% magnesium solution i.e., 1g in 10mls)

   Administer through an Alaris pump at 10mls per hour therefore giving 1g of magnesium per hour

13.5 Repeat doses

In the event that birth does not occur after giving magnesium sulphate for neuroprotection of the infant, and preterm birth (less than 34 weeks' gestation) again appears imminent (planned or definitely expected within 24 hours), a repeat dose of magnesium sulphate as described above may be considered at the discretion of the consultant on call

13.6 Maternal Monitoring

Magnesium toxicity is unlikely with the above regimens and magnesium levels do not need to be routinely measured (see section 6.8 for indications when levels should be monitored)

Loading dose:

1-Pulse, blood pressure, respiratory rate, and patellar reflexes before loading dose, 10 minutes after loading dose infusion has started and at the end of the loading dose infusion (30 minutes)[1]

2-Observe for adverse effects (see Section 6.7)

3-Stop infusion and call for medical assessment if respiratory rate decreases more than 4 breaths per minute below baseline, or is less than 12 breaths per minute; or diastolic blood pressure decreases more than 15 mm Hg below baseline level[1]

Maintenance infusion:

Observe for any adverse effects.
Pulse, blood pressure, respiratory rate, patellar reflexes, and urine output **4-hourly[1]**
Stop infusion and call for medical assessment if respiratory rate is less than 12 breaths per minute; if patellar reflexes are absent, if hypotension occurs or if urine output is less than 100ml over 4 hours[1]
If on calcium channel blockers (e.g., nifedipine) or evidence of renal impairment, observations must be carried out hourly

13.7 Side Effects

Intravenous magnesium sulphate is associated with minor maternal side effects such as facial flushing, warmth, nausea and vomiting and headaches
Very rarely, hypotension, respiratory depression, muscle weakness and paralysis can occur (see Section 6.8)
When given in conjunction with calcium channel antagonists, cardiovascular and neuromuscular effects may be exaggerated.[1] Close monitoring is therefore required if used in conjunction with calcium channel blockers (e.g., nifedipine).
If hypotension occurs, nifedipine and magnesium sulphate administration should cease, and urgent medical review requested
There is no evidence of an effect on maternal death, cardiac respiratory arrest, pulmonary oedema, respiratory depression, severe postpartum haemorrhage, or caesarean section rates[3]
There is no association with adverse long-term fetal or maternal outcomes[1]

13.8 Toxicity

Magnesium toxicity is unlikely with the regimens recommended in these guidelines and serum magnesium concentrations do not need to be routinely measured (RCOG 2006)
If toxicity is suspected, urgent medical review is required
In women with renal compromise or on calcium channel blockers (eg nifedipine), where the risk of toxicity is increased, closer observation is required (see Section 6.6)
Calcium gluconate 1g (10 ml of 10% solution) slowly via intravenous route over 10 minutes is the antidote for magnesium toxicity

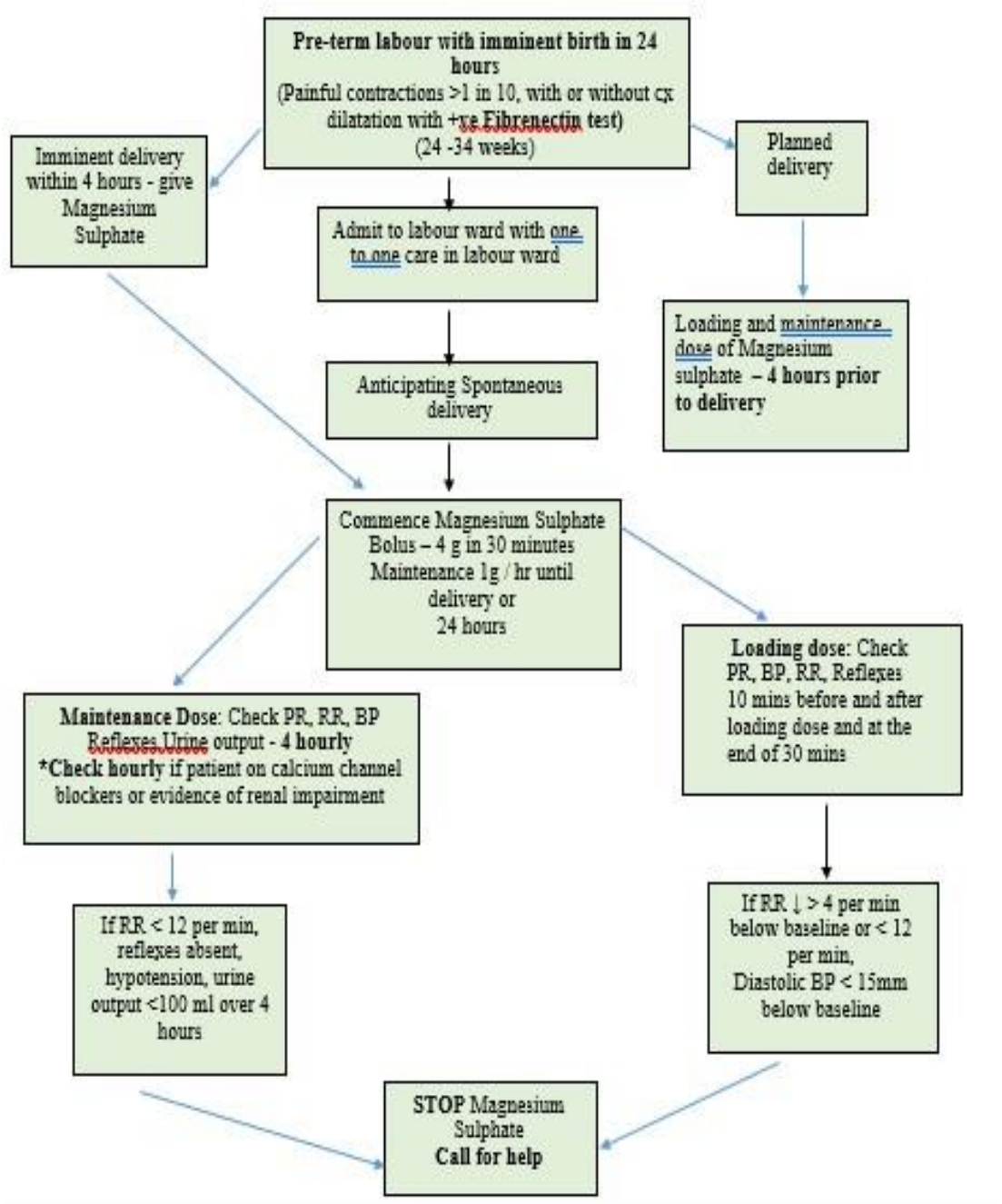
9. References

1. Australian Research Centre for Health of Women and Babies. Antenatal Magnesium Sulphate Prior to Preterm Birth for Neuroprotection of the Fetus,

Infant and Child – National Clinical Practice Guidelines. Adelaide. ARCH; 2010

2. **For more reference see the main guideline**

Appendix 1 Flowchart for the use of Magnesium Sulphate in preterm labour up to 34 weeks



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See

Corticosteroids/Tocolytic regime in the SROM guideline

References: Tocolytic Drugs for Women in Preterm Labour - RCOG greentop guideline No 1B, February 2011

14 Group B Strep (GBS) prophylaxis in pregnancy and labour

Incidence of early onset GBS (EOGBS) disease in UK and Ireland in 2015 has increased and was 0.57/1000 births

Antenatal

- Routine screening is not recommended for Antenatal GBS carriage
- A maternal request is not an indication
- GBS urinary tract infection (growth of greater than 10^5 cfu/ml) during pregnancy should receive appropriate treatment at the time of diagnosis as well as IAP
- Antenatal treatment is not recommended for GBS +ve vaginal or rectal swab
- If GBS +ve in previous pregnancy, offer the woman either IAP (intrapartum antibiotics) or repeat testing (between 35-37 weeks or 3-5 weeks prior to delivery date)
- Swabs collected from low vagina and around anal region

Risk Factors for EOGBS

- Having a previous affected baby with GBS
- Discovery of maternal GBS carriage through bacteriological investigation during pregnancy (eg- urine infection or a vaginal swab)
- Preterm birth
- Prolonged rupture of membranes
- Suspected maternal intrapartum infection, including suspected chorioamnionitis
- Pyrexia

Intrapartum Antibiotic prophylaxis (IAP)

- Previous Pregnancy +ve for GBS
- Previous GBS affected baby
- PPROM
- GBS urinary tract infection (growth of greater than 10^5cfu/ml) during pregnancy)

- Known GBS carriers who are to be delivered by caesarean section after spontaneous ROM

- Raised temperature of >/= 37.5°C on two occasion
- ROM at >37+0 weeks GBS+ve should be offered immediate IAP and induction of labour as soon as reasonably possible (If –ve or unknown carrier status: Offer IOL after 24 hrs)

- Intrapartum pyrexia (38°C or greater) broad-spectrum antibiotic IV Amoxicillin 2g every 6 hours (or IV cefuroxime 1.5g every 6 hours)

- Birthing pool is not contraindicated if the woman is a known GBS carrier provided she is offered appropriate IAP.

- Women who have no other known risk factors can birth in the alongside birth unit with cannula and offered appropriate IAP.

- Preterm labour

Preterm/PPROM

- The risk of GBS infection is higher with preterm delivery and the mortality rate from infection is increased (20–30% versus 2–3% at term) Therefore, IAP is recommended for women in confirmed preterm labour
- If GBS +ve <34 wks
  Risk of prematurity higher than risk of infection. Offer oral erythromycin 250 mg, qds for 10 days. Oral penicillin considered for the same duration in women who cannot tolerate erythromycin. IAP should be given once labour starts
- GBS+ve >34 weeks
  Beneficial to expedite delivery with intrapartum antibiotic prophylaxis

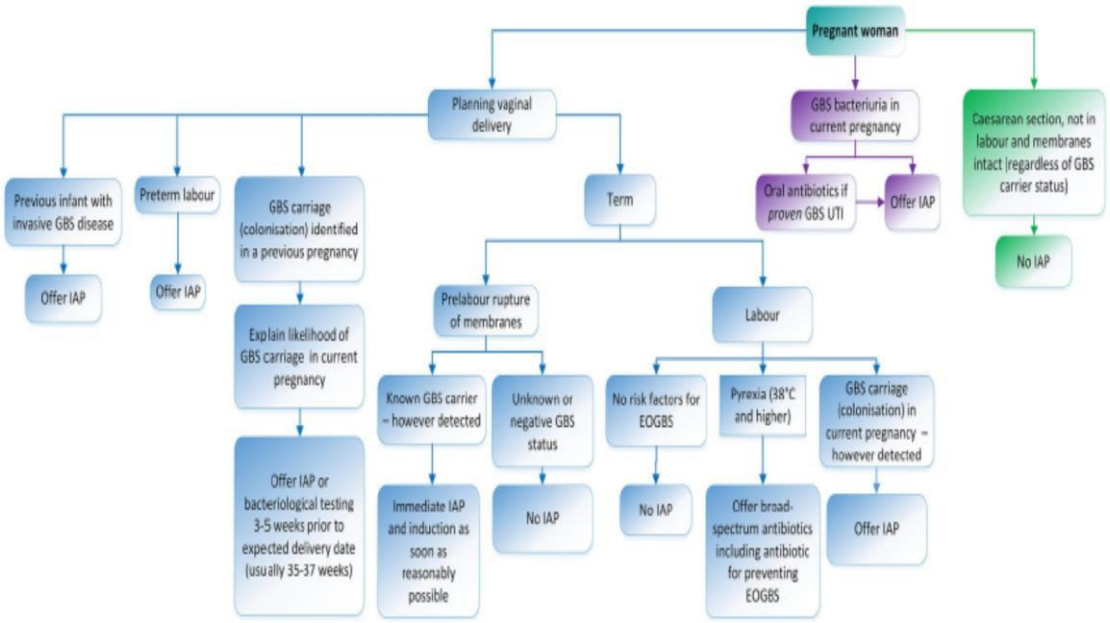
Antibiotics regime

- Antibiotics should be started as soon as possible after the onset of labour
- 3g IV Benzylpenicillin be given as soon as possible after the onset of labour and 1.5g 4 hourly until delivery
- To optimise the efficacy of IAP, the first dose should be given at least 4 hours prior to delivery. Within 2 hrs is still beneficial
- Amoxicillin is an alternative

- Non severe allergy to beta-lactams (i.e., no anaphylaxis, angioedema, respiratory distress or urticaria), then a cephalosporin can be administered intravenously (e.g., cefuroxime, 1.5 g every 8 hours)
- If the allergy to beta-lactams is severe, then intravenous Vancomycin (1g every 12 hours) is recommended
- Clindamycin can no longer be recommended as the current resistance rate in the UK is 16%

Women who decline IAP

Women should be made aware that the risk of the baby developing EOGBS infection is higher than if they had received IAP. The overall risk remains low.
The baby will require clinical evaluation at birth and monitoring of vital signs at 0, 1, 2 hrs and then 2hrly for 12 hours



Diagnosis of Clinical Chorioamnionitis

Temperature ≥ 37.9 ^{0}C and presence of ≥ 2 of the following

- Maternal Tachycardia
- Fetal Tachycardia
- Tender/ Irritable uterus
- Foul smelling /Purulent discharge
- Consider Clinical Chorioamnionitis if there is meconium-stained liquor, fetal tachycardia/ Other CTG abnormalities especially in early labour
- Raised CRP (>30% baseline) (Prior to onset of labour)
- WCC>15,000 (Prior to onset of labour)

Note: If it triggers sepsis, please follow sepsis pathway

Management

- Expedite delivery (IOL or augmentation of labour or Caesarean section as appropriate)
- Institute continuous electronic fetal monitoring with STAN if this is not in place already
- Inform on call consultant
- Inform neonatalogy team
- Obtain Blood cultures
- Give a single dose of gentamicin 5mg/kg body weight stat and Amoxicillin 2gm 6-hrly or Cefuroxime 1.5g 6-hourly IV until delivery if allergic to penicillin
- Give regular paracetamol and tepid sponge. Consider a cooling fan
- Chase any outstanding microbiology specimens

References: Prevention of Early-onset Neonatal Group B Streptococcal Disease. Greentop guideline 36. RCOG. September 2017

15 Pre- eclampsia and Eclampsia

Definitions

Hypertension - BP 140-159/90-109 mmHg
Severe hypertension - BP ≥ 160/110 mmHg

Anti-hypertensives
Aim of the therapy is to keep BP 135/85 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 oral Labetolol 200mg - 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 equals 50mg)
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

Draw 90ml out of a 250ml bag of sodium chloride and discard, leaving 160ml
Add 200 mg of labetolol sodium chloride (2 ampoules/40ml)
You now have 200mg of labetalol in 200ml of sodium chloride
Infuse at 20 mg/hour which is 20ml per hour
The dose can be doubled every 30 minutes to a maximum dose of 160mg per hour if necessary and prescribed by a doctor

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
- Continous 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
- Consider using up to 500ml of crystalloid fluid before or at the same time as the first dose of IV hydralazine

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

Bolus

IV Hydralazine 10 mg (10ml) slowly over 1-minute, repeated doses of 5 mg at 20 minutes interval up to 30 mg maximum. The drug has affect 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 –

a. Loading Dose

4grams of magnesium sulphate given slowly IV over 20 mins

Take a 10ml ampoule of magnesium sulphate (50%) and draw off 8mls which equates to 4 grams of magnesium. Dilute in 12mls of sodium chloride 0.9% which equates to a 4grams in 20ml solution.

Administer via a syringe pump at 60mls per hour which will give the solution slowly over 20 mins.

b. Maintenance Dose

Continuous IV infusion of 1 gram per hour.

c. How to prepare 10% magnesium sulphate

1. Take a 250ml bag of 0.9% sodium chloride
2. Draw off 50mls, leaving 200mls in the bag
3. Add 5 x 10ml ampoules (contains 5g) of magnesium sulphate to the bag

(Adding 50mls of magnesium sulphate to the 200mls of 0.9% sodium chloride will provide a 250mls solution. This will contain 25g magnesium sulphate in the 250ml solution equating to a 10% magnesium solution i.e., 1g in 10mls)

Administer through an Alaris pump at 10mls per hour therefore giving 1g of magnesium per hour.

d. Adverse effects

- nausea, vomiting, flushing, hypotension, and arrhythmias

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 every 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 < 12 beats/ minute
- O_2 saturation is < 90%

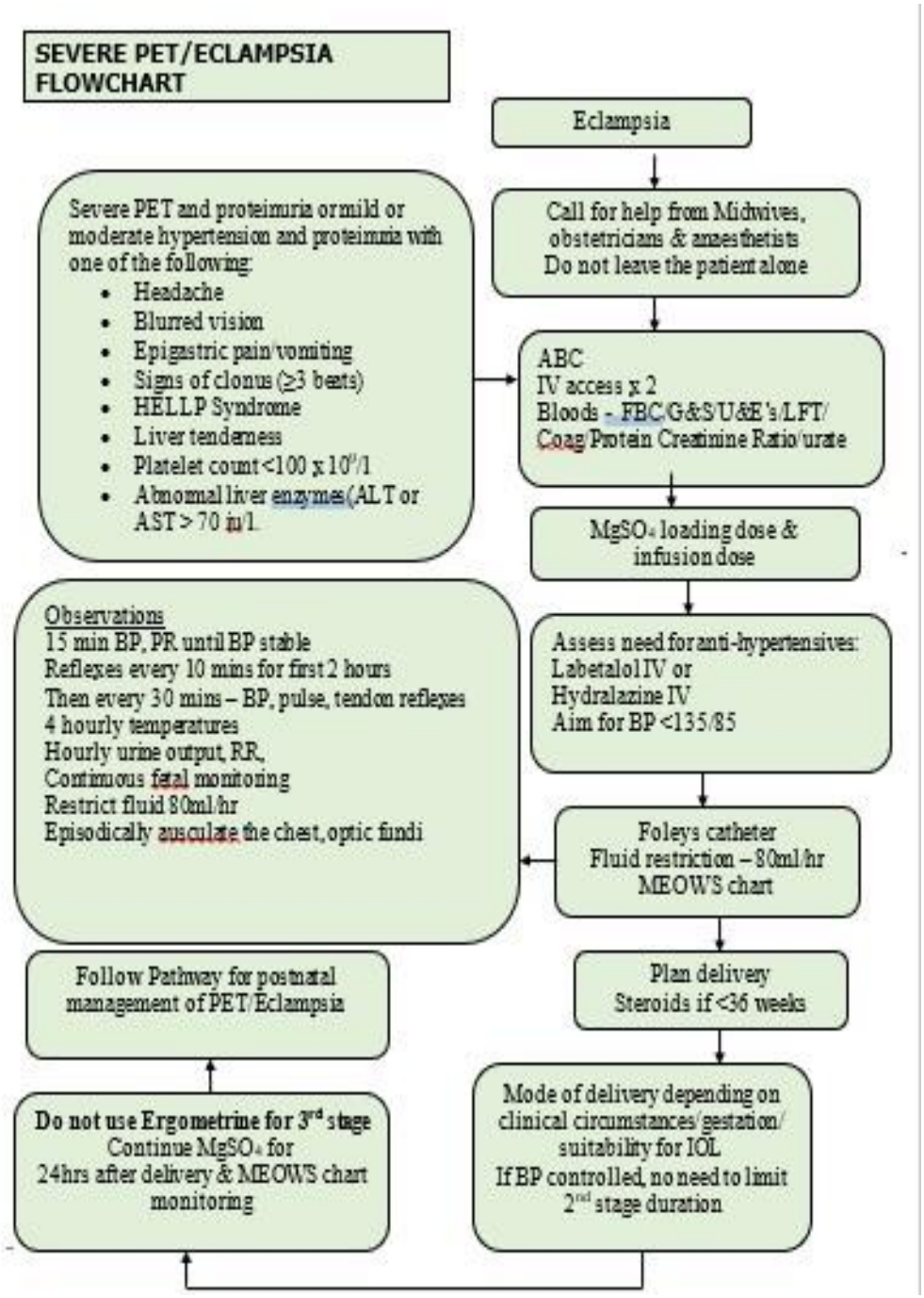
There is no need to measure magnesium levels if urine output is maintained Check magnesium levels if toxicity is suspected on clinical grounds The antidote is 10ml of 10% calcium gluconate slow IV

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 **Error! Reference source not found.**

References: NICE CG 107, Hypertension in pregnancy, August 2010



Please refer to the dose regime

16 Management of Labour in Women with Diabetes (type I, II and

GDM)

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 whilst on a normal diet, continue routine insulin (usually basal bolus and will be prescribed by the team) and blood glucose monitoring an hour after every meal

In established labour

Once labour is established, the woman should be transferred to the labour ward (LW). If there is delay in transfer to LW, commence sliding scale on the ward

The basal insulin (long-acting insulin, usually given at bedtime - i.e. Glargine/Lantus; Detemir/Levemir; Insulatard; Humulin I) should be continued even if on sliding scale

Inform Obstetric and Anaesthetic registrar

Standard high-risk monitoring- maternal observations, continuous CTG, maintenance of partogram

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

All women on Insulin or those not on insulin but have hourly readings above 7mmol -commence sliding scale

Actrapid 50 IU in 50 ml normal saline +
500 ml of 5% dextrose infusion and 0.45% saline with 0.15% KCl (premixed bags) at 100mls/hr (this may need daily adjustments depending on electrolytes)

Units/hour=ml/hr	blood glucose in mmol
0.5	0-3.5
1	3.6-4.9
2	5-9.9
3	10-14.9
5	>15

BM < 4- treat hypoglycaemia (3 glucose tablets/ gel, and increase dextrose infusion and follow insulin dose)

BM >10- change infusion to normal saline

BM >15 -liaise with diabetes team (on call medical team OOH)

Keep consultant on call informed about progress, use of syntocinon for augmentation of labour and need for assisted delivery

Anticipate shoulder dystocia at birth especially if assistance is required. Have a low threshold for trial in theatre for instrumental delivery

Post delivery

Continue sliding scale in women with pre-existing diabetes until they are back on regular meals

Check BMs hourly whilst on sliding scale

Switching from sliding scale to subcutaneous insulin (bolus/short acting) involves giving the short acting insulin **(pre-pregnancy dose**-written in puerperium and intrapartum section) followed by a meal. The IV infusion is stopped after 30 minutes. Stop dextrose infusion at the same time as IV insulin

Ensure long-acting insulin is given at bedtime (**pre pregnancy** dose or as instructed in the notes)

Women who had insulin only during pregnancy (e.g., GDM or Type 2 DM who were on oral therapy prior to pregnancy) will not need any further insulin once the IV insulin infusion is stopped after completion of 3rd stage of labour. The team would decide if this were not the case and document the plan in the notes

On the PN wards, continue to check fasting (on waking up in the morning) and blood sugars 1 hour after every meal until discharged by the team on appropriate dose of insulin

If breastfeeding, the insulin dose may need to be reduced by further 2530% and advice about hypo management should be re-iterated.
Metformin is compatible with breastfeeding

If BMs are erratic (mostly above 15, discuss with medical/diabetic team and they may advice to recommence sliding scale until their review)

Neonate will be observed for signs of hypogylcaemia as per protocol

Elective Caesarean section

Admit patient the previous night. If on long acting/basal insulin, (i.e., Glargine/Lantus; Detemir/Levemir; Insulatard; Humulin I) ensure it is given

Commence sliding scale on the morning of the procedure (7am)

Actrapid 50 IU in 50 ml normal saline + 500 ml of 5% glucose and 0.45%saline infusion with 0.15% KCl (premixed bags) at 100mls/hr

Hourly BMs to be checked from 7am (even during the surgery)

Continue sliding scale and hourly BMs post operatively until normal eating commences when **pre-pregnancy insulin** should be started.

Nausea, vomiting and complications during or after surgery may necessitate delay in switch over from IV to S/C short acting insulin and this should be individualised

Basal/long-acting insulin-**pre pregnancy** dose is continued on the day of the operation (along with sliding scale if has not commenced eating.) As long as on sliding scale, BMs should be checked hourly

Emergency Caesarean section

If already on sliding scale, follow the instructions as above for switching from sliding scale to pre-pregnancy short acting insulin and frequency of BM monitoring. The long acting (basal) insulin is continued

Preterm Labour

Commence IV sliding scale along with first dose of steroid

Use the Supplemental IV Insulin Regime in addition to their usual subcutaneous insulin as long as the patient is eating normally. Dextrose infusion is not given in this regime

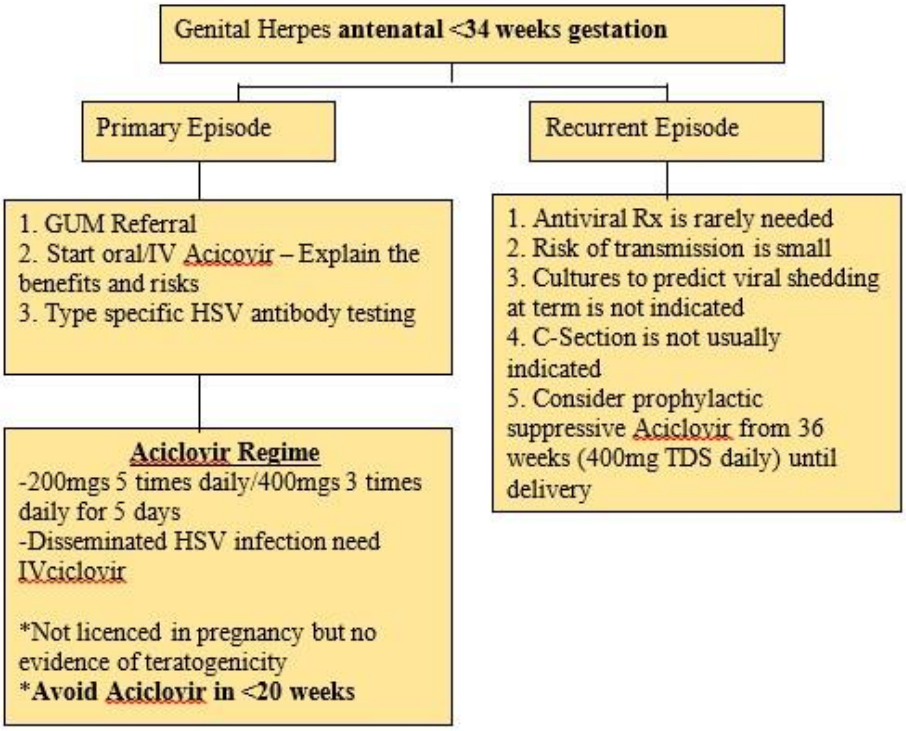
Use the proforma to record dose of insulin and BMs for 12 hours after the last dose of dexamethasone or 24 hours after betamethasone

Nifidipine/atosiban regime for tocolysis
Follow the management of preterm labour protocol

* See GHT DIR 1221 Management of Diabetic Ketoacidosis in Adults

(DKA)- ISSUE 2.PDF
** See GHT/DIR/Guide to the management of Hypoglycaemia in Adult

17 Protocol for Genital Herpes in Pregnancy



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

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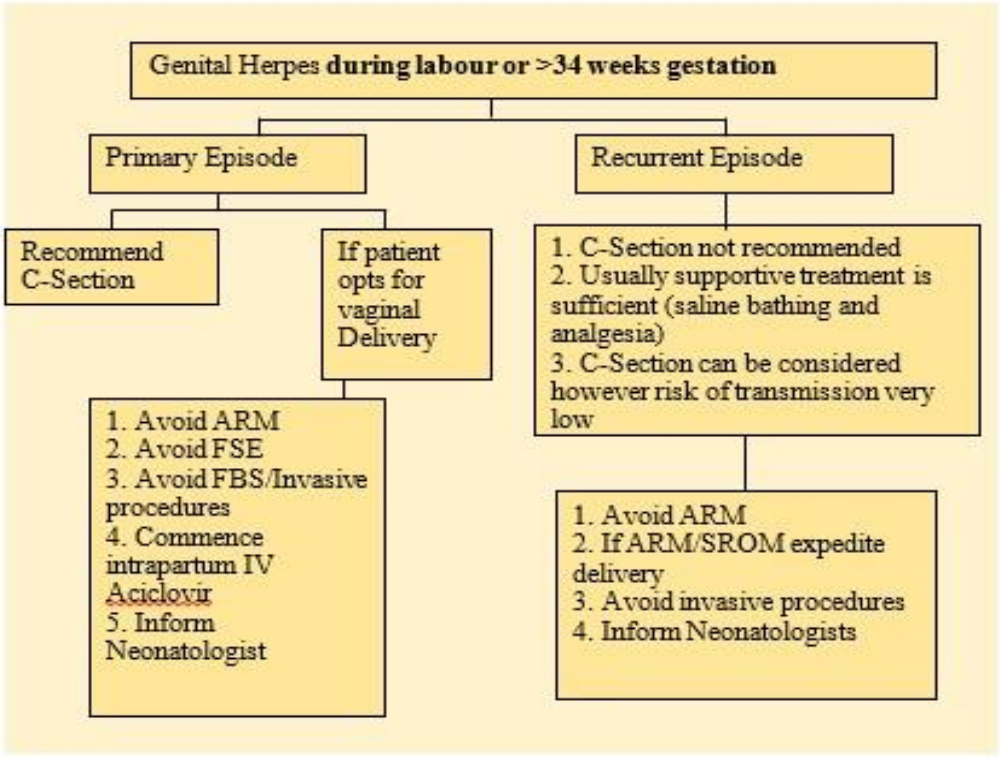
Protocol for Genital Herpes during Labour or >34 weeks gestation

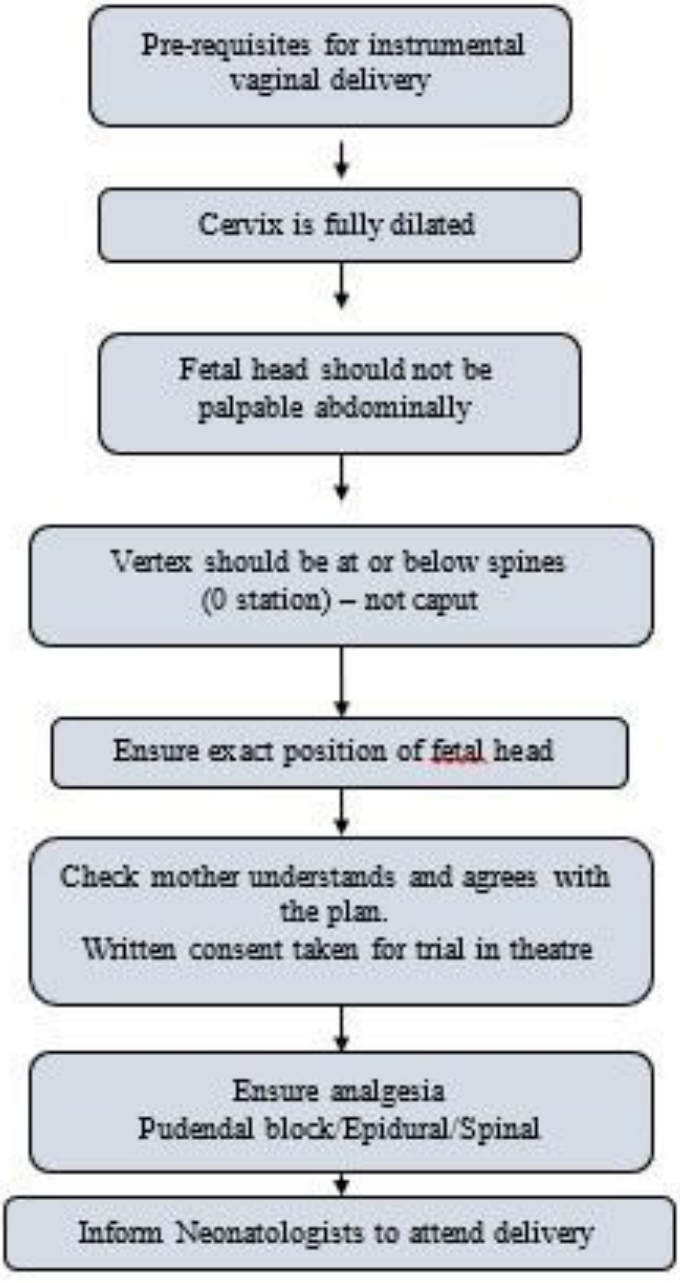


Breastfeeding is only contraindicated in the event of a herpetic lesion on the breast

Reference: Management of genital Herpes in Pregnancy, RCOG/BASHH October 2014

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

18 Instrumental delivery pre-requisites



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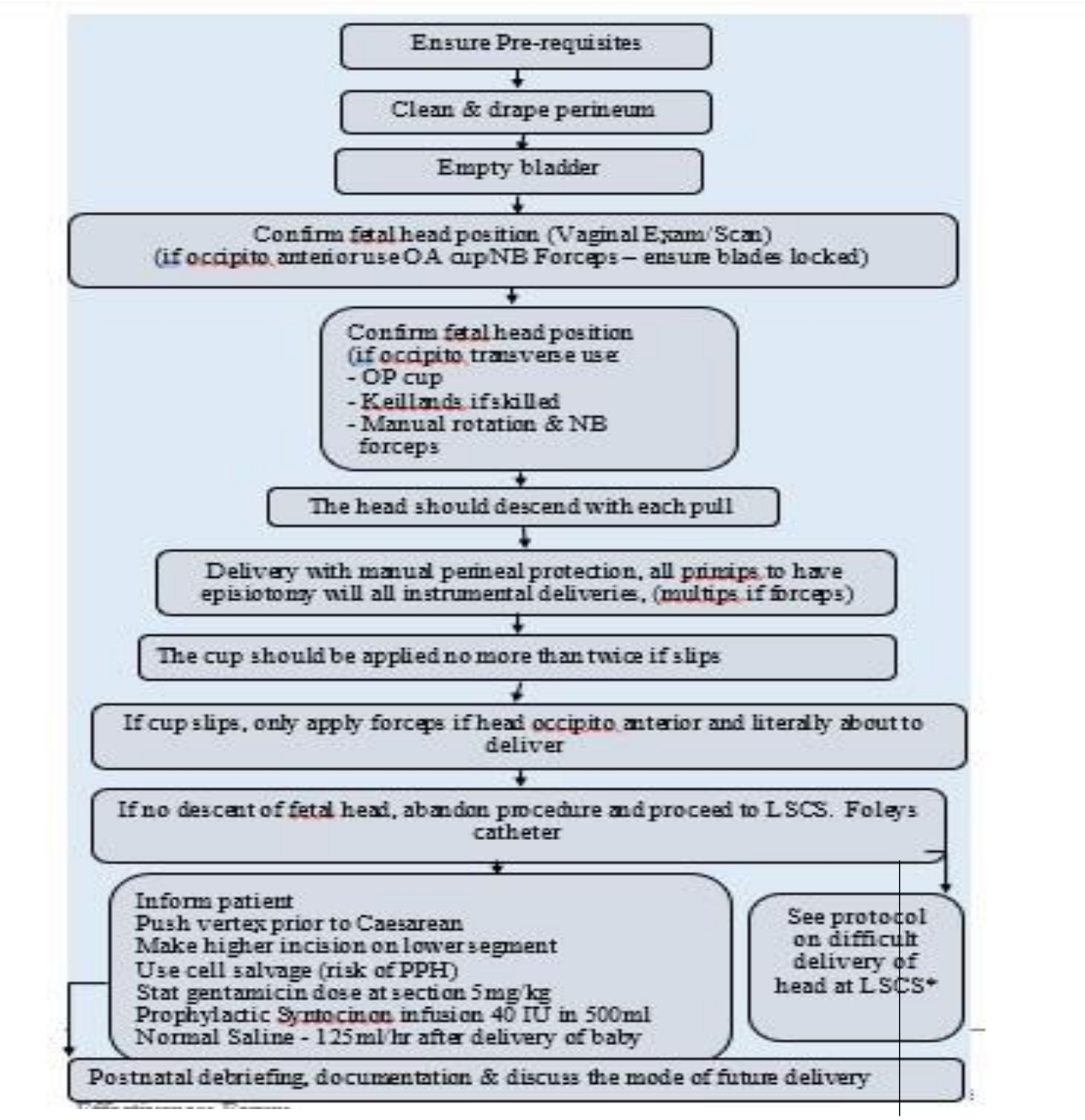
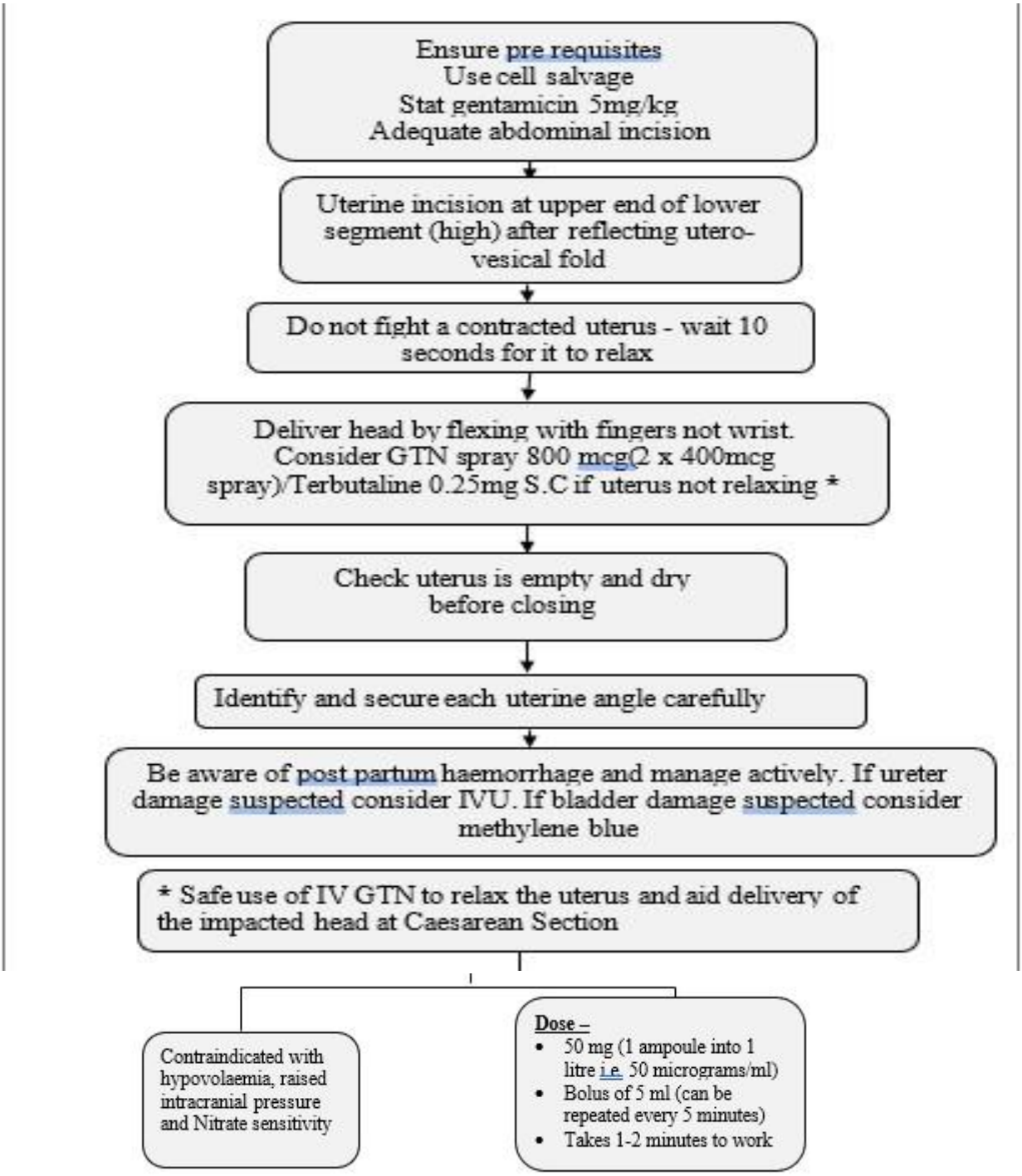
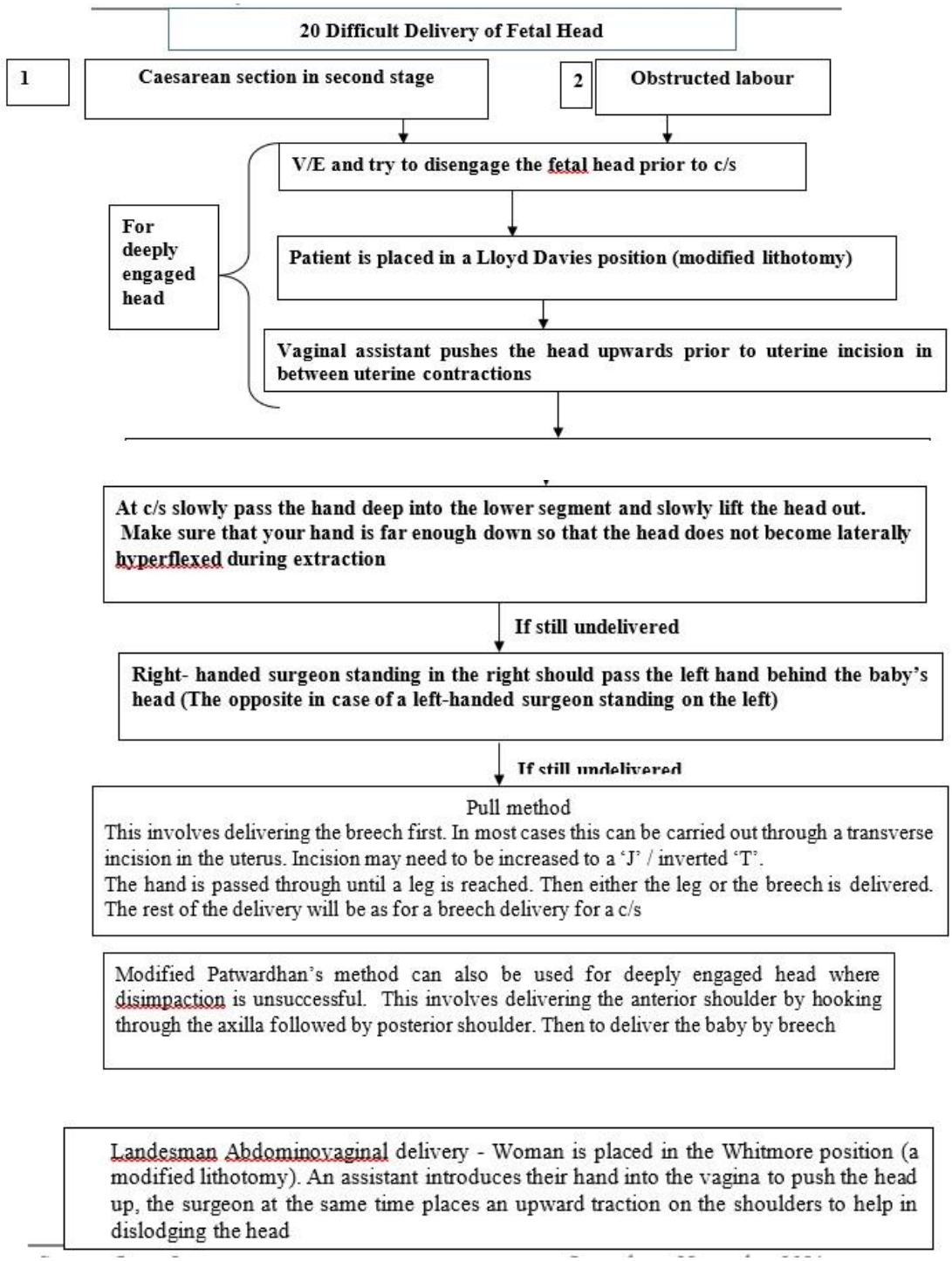
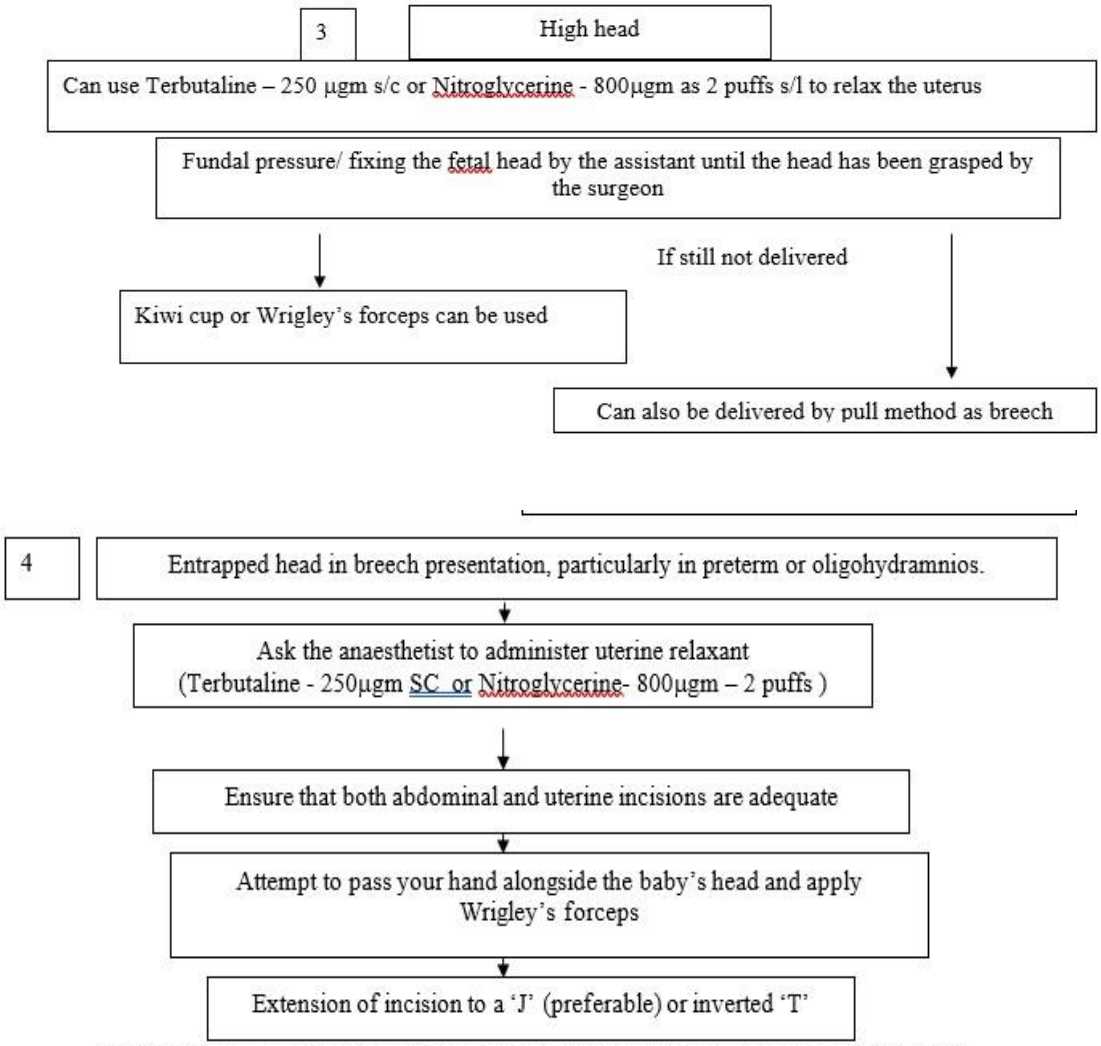
18 **Pre-Requisites for Caesarean Section Error! Reference source not found.**

Second Stage Caesarean Section




Ensure pre requisites
Use cell salvage
Stat gentamicin 5mg/kg
Adequate abdominal incision
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 800 mcg(2 x 400mcg spray)/Terbutaline 0.25mg S.C if uterus not relaxing *
Check uterus is empty and dry before closing
Identify and secure each uterine angle carefully
Be aware of post partum haemorrhage and manage actively. If ureter damage suspected consider IVU. If bladder damage suspected consider methylene blue
* 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 mg (1 ampoule into 1 litre i.e. 50 micrograms/ml)
Bolus of 5 ml (can be repeated every 5 minutes)
Takes 1-2 minutes to work


20 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
For deeply engaged head
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
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 on 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



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
2. Journal of Perinatal Medicine, 2004, 32:465-469
3. Arad I. "Vacuum extraction at caesarean section neonatal outcome"]. Perinat. Med. 14 1986; 14: 137-140.
4. Nakano R. "Use of the vacuum extractor for delivery of the fetal head at caesarean section" Obstet. Gynecol. October 1981; 141(4):475.
5. Solomons E. "Delivery of the head by Malmstrom vacuum extractor during caesarean section" Obstet. Gynecol 1962; 19: 201.
6. Fasubaa *et al*. Delivery of the impacted head of the fetus at caesarean section after prolonged obstructed labour: a randomised comparative study of two methods. Journal of Obstetrics and Gynaecology, 2002 Jul;22(4):375-378.

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21 Surgical Management of Post-Partum Haemorrhage

(for medical management see Major Obstetric Haemorrhage management Guideline – ABHB/W&C/0293)
http://howis.wales.nhs.uk/sitesplus/documents/866/ABHB_Clinical_0576%2 0Management%20of%20Massive%20Haemorrhage_Issue%203.pdf see page 17-23 appendix 1

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. Ensure Rotem is performed (>1000ml blood loss) and further bleeding 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, the Brace Suture and uterine artery ligation without delay. Consider Interventional Radiology input if available. If resorting to hysterectomy get a second opinion and help from another consultant

   1. SOS Bakri tamponade balloon

   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. 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 into the uterus by retrograde placement via the vagina.

   2. Brace suture (B-lynch) for massive postpartum haemorrhage

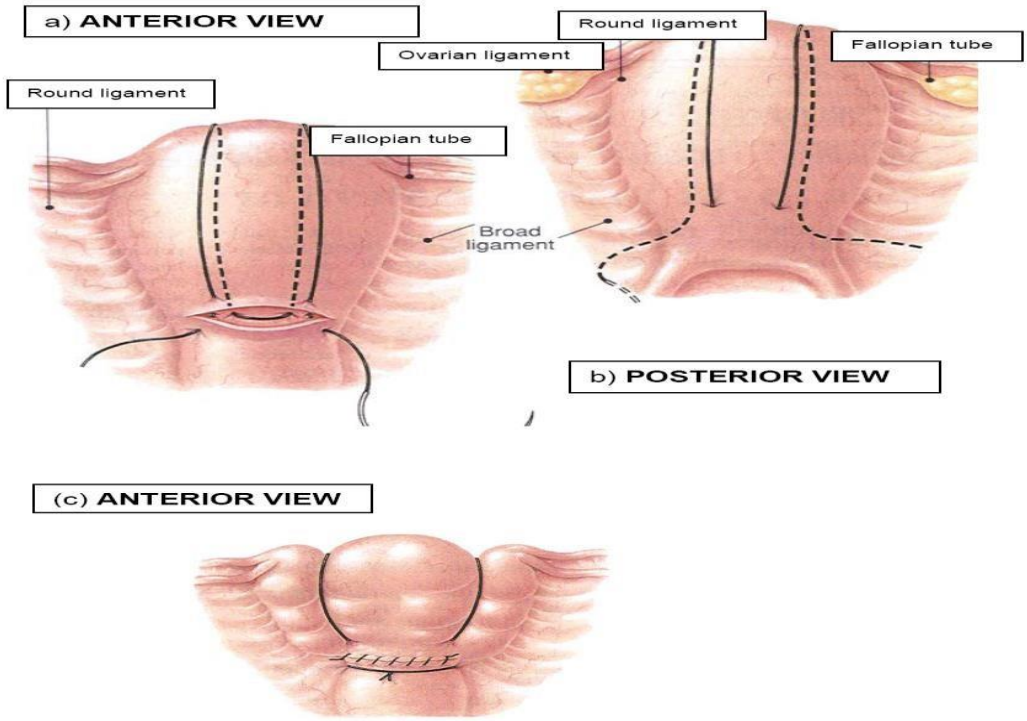
   GA/Regional if appropriate

Pfannenstiel incision or if bleeding after CS reopen and same incision Lower segment is opened after dissecting bladder off, or a recent CS suture is

removed, and cavity entered. Evacuate cavity and examine cavity. Exteriorise uterus and check for any bleeding points.
Try bimanual compression of uterus to assess the potential chance of success of B Lynch suture. If bleeding is stopped by compressing the uterus, start suturing.
Use number 2 polysorb taper cut needle (150cm).
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).
The polysorb is passed over to compress uterine fundus approximately 3-4 cm from the left cornual border. The polysorb is fed posteriorly and vertically to enter the posterior wall of the uterine cavity at the same level as the upper anterior entry point. The polysorb is pulled under moderate tension assisted by manual compression exerted by the first assistant. The length of the polysorb is passed back posteriorly through the same surface marking as for the left side with the suture lying horizontally.
The polysorb 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.
The two lengths of the polysorb 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

The lower uterine incision is now closed in the normal way in 2 layers.

See diagrams (next page)



B-Lynch et al, BJOG 1997, 104, 372-375

Uterine artery ligation in the control of post Caesarean haemorrhage

The aim is to devascularize the post caesarean 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 Vicryl
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

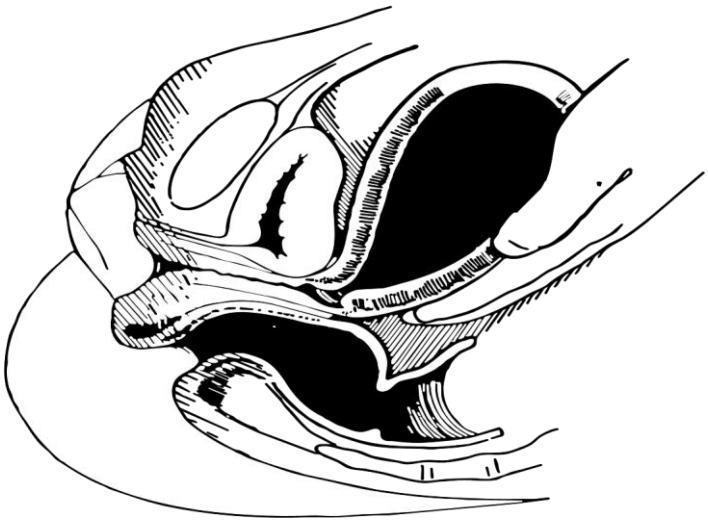


Figure 2

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

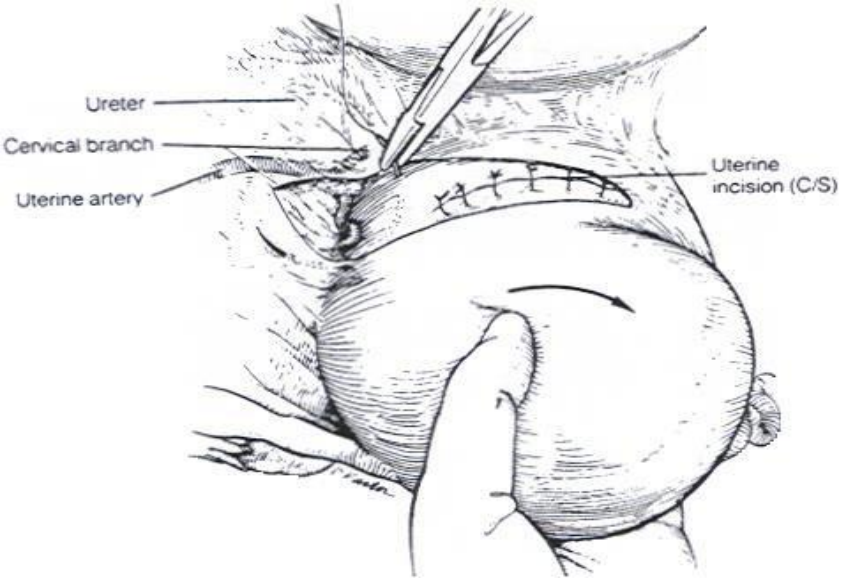
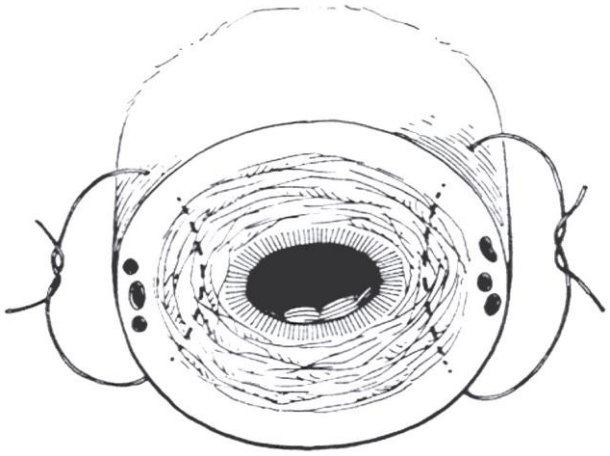


Figure 3

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



Ref - Bakri Y.N. Uterine tamponade-drain for hemorrhage secondary to placenta previaaccreta. Int J Gynecol Obstet 1992,37

O'Leary "Uterine artery ligation in the control of Postcaesarean Haemorrhage" J Reprod Med 1995; 40: 189-193.

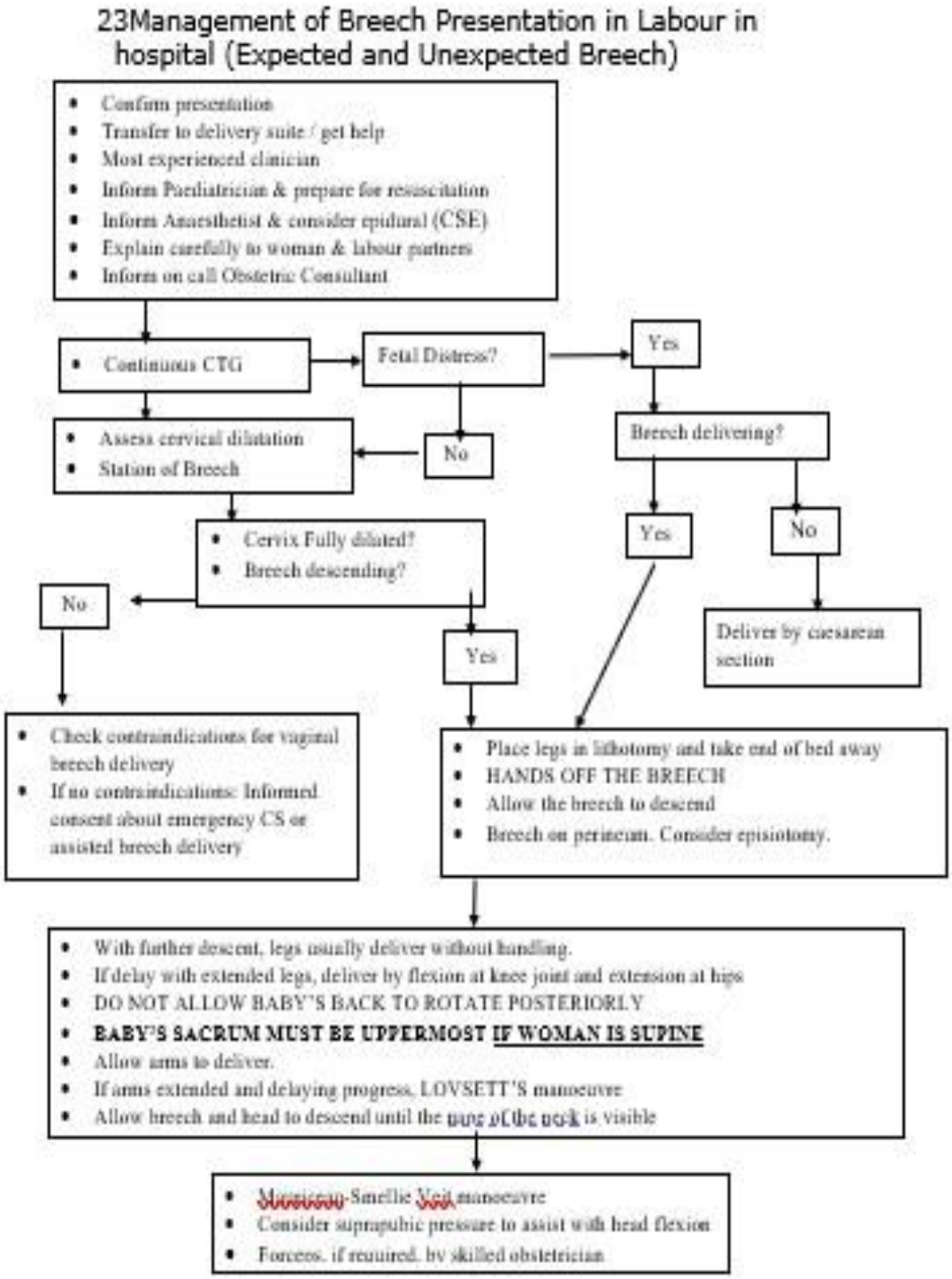
22 Breech Delivery

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 the ultrasound 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.


23Management 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
No
Assess cervical dilatation
Station of Breech
Breech delivering?
Yes
No
Cervix Fully dilated?
Breech descending?
No
Yes
Deliver by caesarean section
Check contraindications for vaginal breech delivery
If no contraindications: Informed consent about emergency CS or assisted breech delivery
Place legs in lithotomy and take end of bed away
HANDS OFF THE BREECH
Allow the breech to descend
Breech on perineum. Consider episiotomy.
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
Mauriceau-Smellie-Veit manoeuvre
Consider suprapubic pressure to assist with head flexion
Forceps, if required, by skilled obstetrician

24 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

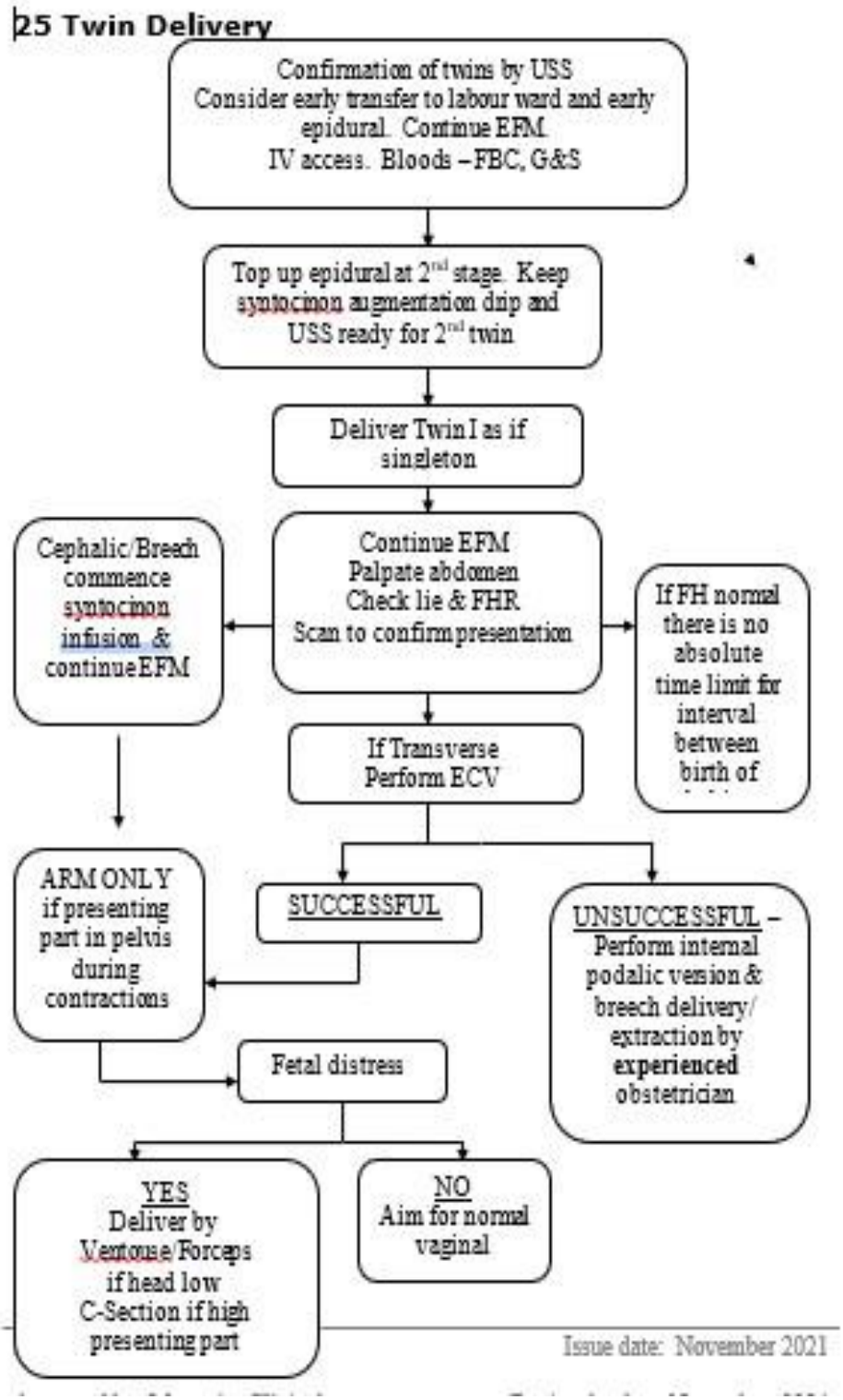
****

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, 16/03/2017



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26 Management of Twin Delivery

Equipment available in labour room -

2 resuscitaires.

- Delivery trolley with 2 delivery packs.
- Portable ultrasound scanner.
- Lithotomy set.
- Instrumental delivery trolley.
- Amnihook.
- Syntocinon 30iu in 500mL normal saline infusion for augmentation.
- Syntocinon 40iu in 500mL normal saline infusion for PPH prophylaxis.
- Ensure an obstetric theatre is kept available during second stage.

Admission to MDU

- Baseline observations.
- Commence CTG/STAN.
- Inform obstetric registrar:
    - Review:
        - handheld notes if no hospital notes available,
        - EFW of both twins and amnionicity & chorionicity,
        - Identify additional risk factors,
        - Document and discuss plan of care.
    - Confirm lie and presentation of both twins, ○ Inform consultant on call, ○ Discuss epidural analgesia.
- Site large bore cannula and ensure G&S and FBC available, consider crossmatch.

-

Inform obstetric anaesthetist:

- Keep the anaesthetist informed of progress throughout.

- Inform SCBU.

First Stage of Labour

- Routine observations, bladder care and diet as per NICE guidance on intrapartum care.

- Give ranitidine 150mg PO every 6 hours.

- Continuous monitoring of CTG/STAN:

  - Consider FSE for twin 1.

  - Caesarean section is indicated if there are concerns about fetal wellbeing of twin 2.

  - Pulse oximeter for maternal pulse. o Beware of same twin monitoring.

- Analgesia:

  - Epidural is recommended but maternal choice is key.

  - An effective epidural is beneficial as it allows for top-up for trial of instrumental delivery, external or internal version of twin 2 and emergency caesarean section.

  - Elective epidural top-up of 5-10mL of 0.5% levobupivacaine after the delivery of twin 1 will facilitate manipulation, instrumental delivery and rapid top-up for emergency caesarean section of twin 2.

- Augmentation of the first stage of labour is not contraindicated. The same indications apply as for singleton pregnancies.

- Consider tocolysis for transfer to theatre or caesarean section.

-

Personnel to be present in labour room at time of delivery -
2 midwives (at least one experienced midwife).

- Experienced obstetrician.
  2 neonatal teams (if preterm)

- Obstetric anaesthetist (present and aware on labour ward) and ODP.

Delivery of twin 1

- Deliver as for a singleton pregnancy.

- Withhold third stage oxytocic after delivery of twin 1.

- Clamp and cut the umbilical cord after delivery of twin 1.

- The length of the second stage for twin 1 should not differ from management of a singleton pregnancy if there are no concerns about fetal wellbeing of twin 2.

Delivery of twin 2

- Continue to monitor CTG of twin 2 continuously.

- Perform abdominal palpation and vaginal examination immediately after delivery of twin 1.

- Presentation and lie of twin 2 could be confirmed by ultrasound immediately after delivery of twin 1 and should be kept stable if longitudinal until presenting part descents into pelvis.

- If the lie is not longitudinal perform external cephalic version (ECV) or internal podalic version (IPV). IPV is ideally done in theatre and with intact membranes. The membranes may break spontaneously, otherwise rupture them as late as possible once the rotation is complete.

- If the contractions cease *and* if the lie of twin 2 is longitudinal, augmentation syntocinon infusion should be commenced to shorten the delivery interval. Consider commencing at 4mL/hr and double the rate every 5 minutes up to 16mL/hour to achieve maximum of

-

4 contractions in 10 minutes as long as the CTG is satisfactory and with safe consideration.

- Perform ARM when clinically appropriate. Exclude cord presentation and confirm fetal presentation prior to ARM. Perform ARM during a contraction and when the presenting part is in the pelvis.
  Ideally aim to deliver twin 2 within 30 minutes of twin 1 because of the risk of fetal distress. If there are no concerns about fetal wellbeing the interval may be longer to allow for spontaneous delivery. If there are concerns about fetal wellbeing or there is significant delay an assisted delivery / caesarean section is indicated.

Third stage

- Active management of third stage with i.m. oxytocin 10iu after delivery of twin 2.

- Prophylactic Syntocinon 40iu in 500mL normal saline infusion at 125 mL/hr.

- Manage a PPH according to PPH protocol.

- Paired cord gases should be taken for both twins.

- Precise documentation of the delivery.

- Debrief woman and partner of events.

Obstetric considerations

- MCMA twins should be delivered by caesarean section.

- The risk of intra- and postpartum haemorrhage is increased in multiple pregnancy.

- There is an increased risk of operative delivery in multiple pregnancy.

- Keep a low threshold for transfer to theatre in second stage. Instrumental delivery or internal manipulation should ideally be performed in theatre.

-

- If twin 1 is non-vertex at presentation caesarean section could be advised but maternal choice should be respected.

- Vaginal twin delivery after previous caesarean section is not contraindicated.
  IPV, ECV and breech extraction are of equal outcome when manipulation of twin 2 is needed. Caesarean section is associated with increased maternal morbidity.

- Acute TTTS could happen after delivery of twin 1. Continuous CTG monitoring of twin 2 is essential.

- If there are any concerns about fetal wellbeing of twin 2 consider caesarean section.

Anaesthetic considerations

- Epidural does not increase the twin-twin interval.

- Instrumental delivery is as high as 8% after spontaneous delivery of twin 1.

- Caesarean section is as high as 6% after spontaneous delivery of twin 1.

- Internal manipulation may be necessary for delivery of twin 2.

- 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 can be prolonged (especially for higher order deliveries).

- There is an increased likelihood of premature or prolonged labour, instrumental delivery, and PPH.

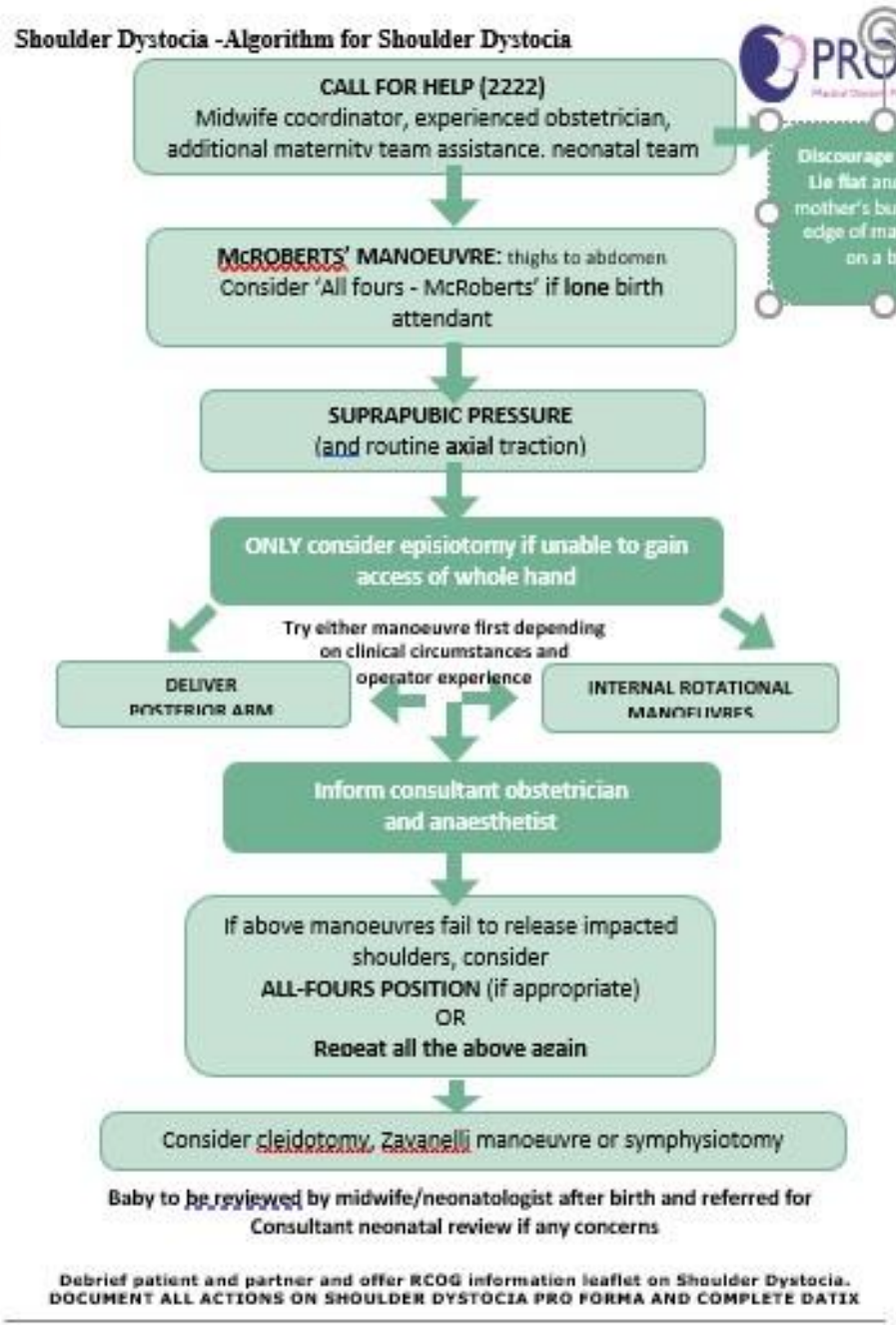
References

• The MOET Course Manual: Managing Obstetric Emergencies and Trauma. Cambridge 2014.

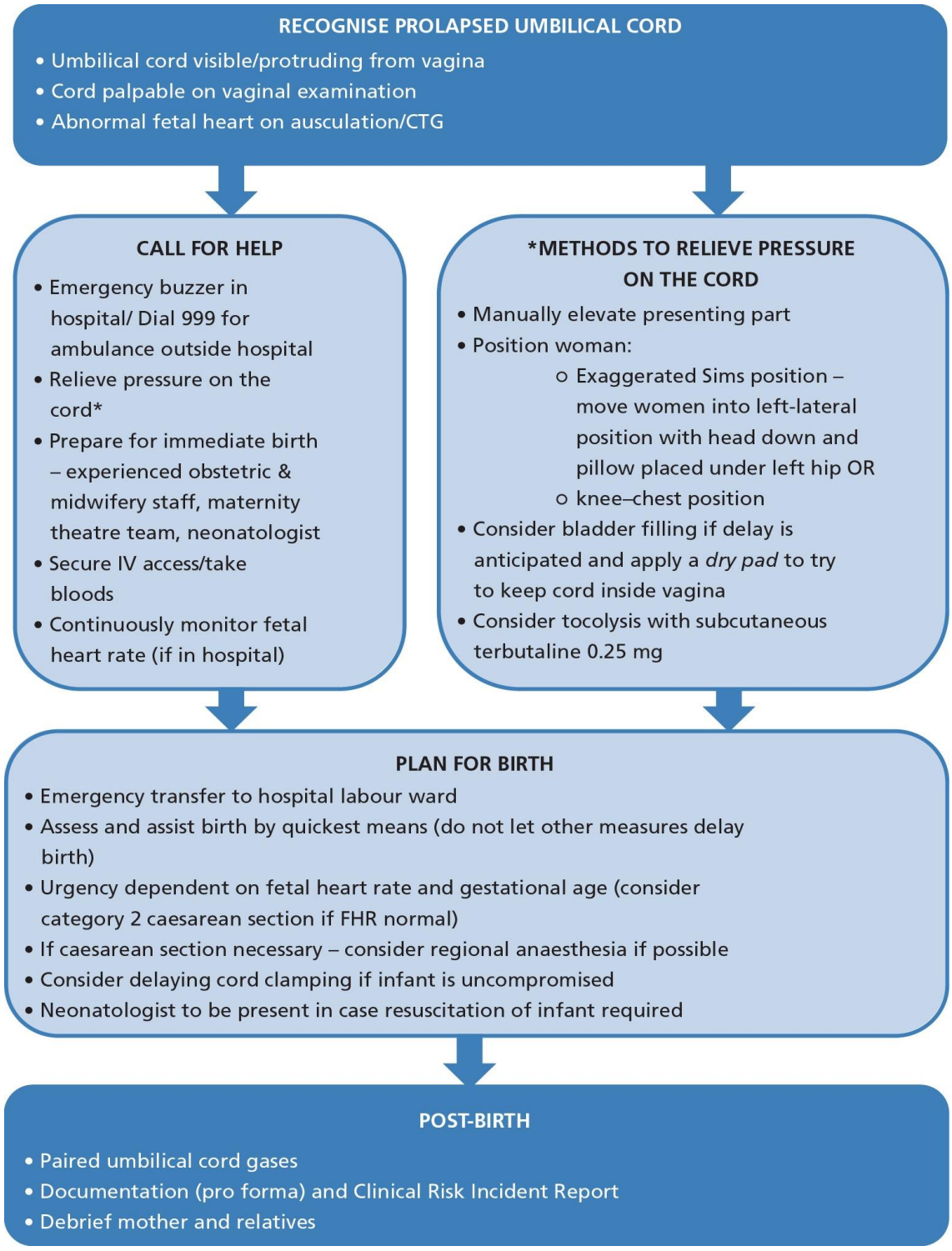
-

- PROMPT Course manual. Cambridge 2017.
- Oxford specialist handbooks in anaesthesia: Obstetric Anaesthesia. Oxford 2008.
- Analgesia, anaesthesia and pregnancy: a practical guide. Cambridge 2007.

- Best practice in Labour and Delivery. Warren, Arulkumaran. Cambridge 2010.
- Intrapartum Care for the MRCOG and beyond. RCOG Press.
- Queen Charlottes Hospital Twin Guideline.


Shoulder Dystocia -Algorithm for Shoulder Dystocia
PROMPT
CALL FOR HELP (2222)
Midwife coordinator, experienced obstetrician, additional maternity team assistance. neonatal team
Discourage pushing
Lie flat and move mother's buttocks to edge of mattress if on a bed
McROBERTS' MANOEUVRE: thighs to abdomen
Consider 'All fours - McRoberts' if lone birth attendant
SUPRAPUBIC PRESSURE
(and routine axial traction)
ONLY consider episiotomy if unable to gain access of whole hand
Try either manoeuvre first depending on clinical circumstances and operator experience
DELIVER POSTERIOR ARM
INTERNAL ROTATIONAL MANOEUVRES
Inform consultant obstetrician and anaesthetist
If above manoeuvres fail to release impacted shoulders, consider
ALL-FOURS POSITION (if appropriate)
OR
Repeat all the above again
Consider cleidotomy, Zavanelli manoeuvre or symphysiotomy
Baby to be reviewed by midwife/neonatologist after birth and referred for Consultant neonatal review if any concerns
Debrief patient and partner and offer RCOG information leaflet on Shoulder Dystocia.
DOCUMENT ALL ACTIONS ON SHOULDER DYSTOCIA PRO FORMA AND COMPLETE DATIX

27 Algorithm for cord prolapse



28 UTERINE INVERSION

Suspect

Recognition

- Severe lower abdominal pain in 3rd Stage
- 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

- Call for help from experienced obstetrician/anaesthetist/midwives
- Give facial oxygen 10L/min and lie flat
- 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 (2L crystalloids)
- Monitor RR, BP, pulse, urine output, O_2 saturation continuously
- Arrange appropriate analgesia
- Transfer to theatre
- Attempt to reposition the uterus
  - Manual replacement (Johnson manoeuvre)
  - O'Sullivan's technique infuse 2-3 litres warm saline into posterior fornix of the vagina (use Ventouse silicon cup)
  - Consider tocolytics to facilitate replacement of uterus
    - Terbutaline 0.25 mgm IV/SC
    - Nitroglycerine 100 mgm IV/GTN
    - May need GA
  - Surgery - *Huntingdon's method
    **Houltains technique
  - Oxytocin administered after repositioning (post replacement)
    - Risk of PPH
  - Do not remove placenta, leave until after repositioning
  - IV prophylactic antibiotics
  - 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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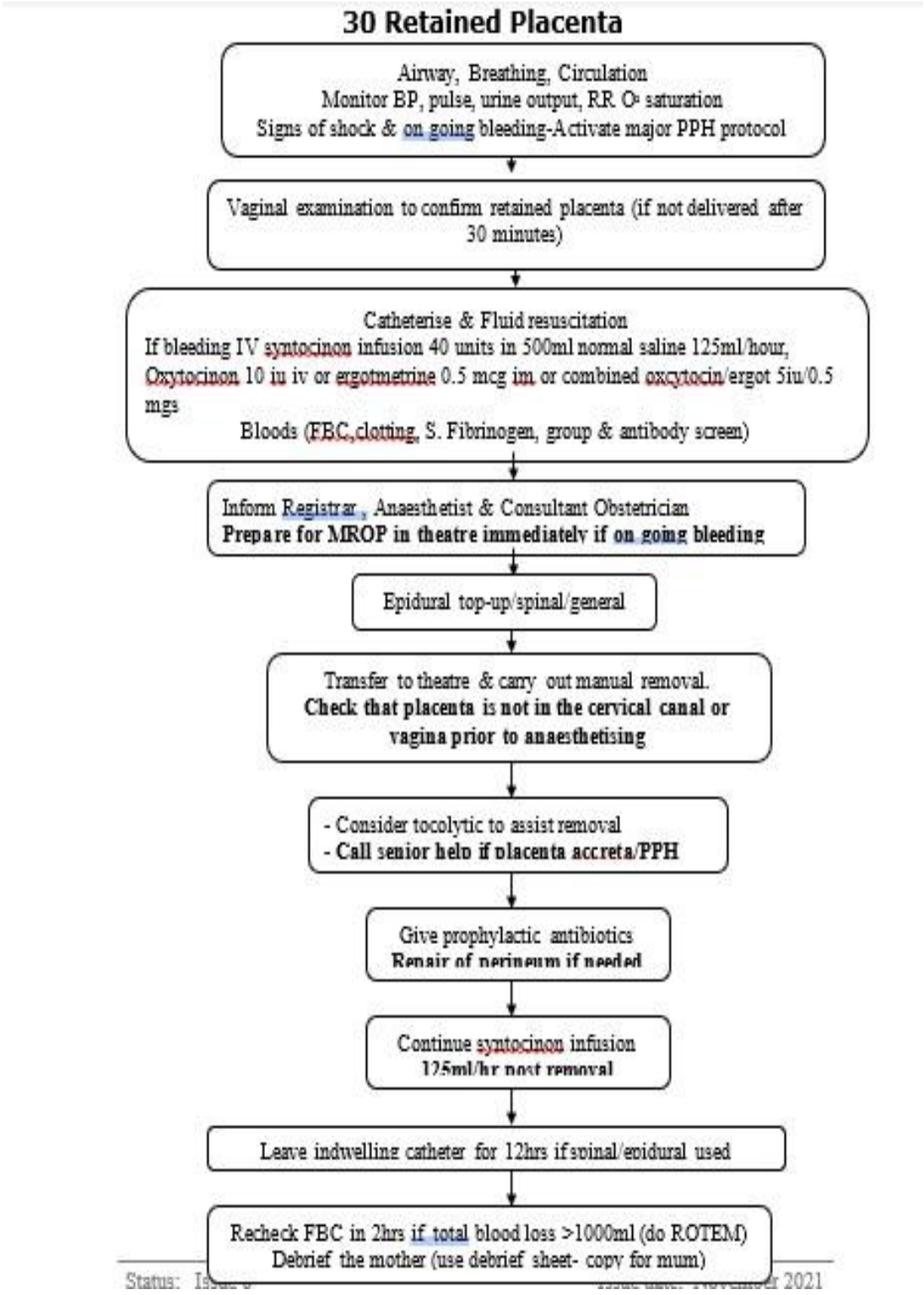
30 Retained Placenta
Airway, Breathing, Circulation
Monitor BP, pulse, urine output, RR O2 saturation
Signs of shock & on going bleeding-Activate major PPH protocol
Vaginal examination to confirm retained placenta (if not delivered after 30 minutes)
Catheterise & Fluid resuscitation
If bleeding IV syntocinon infusion 40 units in 500ml normal saline 125ml/hour, Oxytocinon 10 iu iv or ergotmetrine 0.5 mcg im or combined oxcytocin/ergot 5iu/0.5 mgs
Bloods (FBC,clotting, S. Fibrinogen, group & antibody screen)
Inform Registrar , Anaesthetist & Consultant Obstetrician
Prepare for MROP in theatre immediately if on going bleeding
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 (do ROTEM)
Debrief the mother (use debrief sheet- copy for mum)

31 Error! Reference source not found. MANAGEMENT OF JEHOVAH'S WITNESSES IN PREGNANCY

(& care plan for women in labour refusing blood transfusion)

ANTENATAL

- To be seen by consultant obstetrician at booking.
- Respect patient wishes and Make clear Advance Directive.
- Clear statement and documentation of accepted/refused products.
- Offer the patient to speak with Hospital Liaison Committee for Jehovah's.
- Ensure patient has an opportunity to speak with the obstetrician in 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 required.
- Consider IV Iron (Ferrinject) if evidence of anaemia and low Ferritin (1g 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

- 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.

- Injection Ergometrine 500 micrograms IV, Oxytocin 10 units IV slowly.
- Carboprost (Haemabate) 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. Use recombinant human erythropoietin 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

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Members of the Hospital Liaison Committee for Jehovah's Witnesses are trained to facilitate communication between medical staff and Jehovah's 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.

21 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 ultrasound scan) and FH heard during labour:
    - >23+0 weeks gestation: An experienced paediatrician and another clinician (neonatal nurse and / or) need to attend birth to assess whether active resuscitation is appropriate depending on condition of baby at birth
    - <22+6 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
2. if gestation **uncertain** and FH audible during labour:
    - 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 postmortem examination and the prognosis for future pregnancies.

References:

1) The EPICure Study (provisional data – appendix c)
2) Perinatal management at the lower limit of viability. JM Rennie Arch Dis Child Fetal Neonatal Ed 1996 May 74:3 F214-8.
3) Changing prognosis for babies of less than 28 weeks gestation in the north of England between 1983 and 1994. Northern Neonatal Network. Tin W, Wariyar U, Hey E BMJ 1997 Jan 11;314 (7074): 107-11.
4) Caesarean section or vaginal delivery at 24 to 28 weeks gestation: comparison of survival and neonatal and two-year morbidity. Kitchen W, Ford GW, Doyle LW, Rickards AL, Lissenden JV, Pepperell RH, Duke JE Obstet Gynecol 1985 Aug 66:2 149-157.
5) Withholding or withdrawing Life Saving Treatment in Children – A Framework for Practice. Royal College of Paediatrics and Child Health, September 1997.

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? **NO** → Paediatricians present at delivery. Assume viable infant - assess at delivery and resuscitate if appropriate

YES

Gestation	In-utero Transfer	Caesarean Section	Paediatric Care
21 wks + 6	Not Indicated	Maternal factors only	Present at compassionate delivery **
22wks + 0 to 22wks + 6	May be indicated for Obstetric care	Maternal indications only*	Maternal compassionate factors, present at delivery, care only for infant **

23wks + 0 to 25 wks + 6	Should be considered	Rarely indicated * Maternal indications only	Assume viable infant - assess at delivery and resuscitate if infant's condition is appropriate ***
26wks + 0 to 27wks +6	Should be considered	Accepted mode of delivery, with fetal compromise	Full resuscitation and supportive care

* 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 considered 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 and 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

22. Management of Sepsis in Labour ward

Sepsis is responsible for 1 out of every 4 deaths in the UK during pregnancy and within 6 weeks of childbirth.
The most common pathogen responsible for puerperal sepsis is E.Coli closely followed by Group A Streptococcus.

THINK SEPSIS

Figure 1. Risk Factors for Maternal Sepsis

- Retained products of conception – following miscarriage, termination of pregnancy or birth
- Caesarean delivery particularly an emergency procedure in labour
- Operative vaginal delivery
- Prolonged rupture of membranes
- Wound haematoma
- Invasive intrauterine procedure – ERPC, amniocentesis or CVS
- Cervical suture
- Obesity
- Impaired immunity – immunosuppressive medication including high dose steroids, HIV infection
- Diabetes
- Working with, or having small children – Group A Streptococcus risk

RECOGNITION OF SEPSIS

Clinical features of sepsis include:

- Tachycardia >100 bpm (110bpm in Labour)
- Tachypnoea (respiratory rate >20) or hypoxia with O2 sats <94% on air
- Systolic hypotension BP< 100mmHg
- Oliguria (urine output <0.5ml/kg/hr for 2 hrs)
- Rigors or temperature <36 - Pyrexia alone is an unreliable sign
- Abdominal pain or distension
- Offensive vaginal discharge
- Urinary symptoms
- Productive cough
- Altered conscious level, hypothermia and ashen appearance all represent late signs

All observations should be recorded on an early warning or MEOWS chart.

- Investigations following full clinical examination include;
- Full blood count, CRP, U&E's, lactate, glucose, clotting screen incl. fibrinogen
- Blood cultures (even if the woman is on antibiotics)
- Midstream urine
- Any other relevant swabs of wound, pus, vagina, placenta, sputum
- Throats swabs in presence of sore throats or respiratory symptoms
- Chest X-ray if clinically indicated

Appropriate investigations to exclude retained products or pelvic collection postpartum (ultrasound or CT)

PRINCIPLES OF "SEPSIS 6" PLUS 1 (FETUS)

1	**Administer oxygen to maintain O2 saturations >94%.** This can usually be achieved by giving high-flow oxygen by face mask with a reservoir bag at 15l/min and ensure the woman is maintained in the left lateral position.
2	**Take blood cultures even if already on antibiotics.** Do not delay starting antibiotics if blood culture bottles are not available.
3	**Give intravenous antibiotics – see local antibiotic policy.**
4	**Give intravenous fluid – initial 500mls stat over 15 mins but may require up to 30mls/kg of iv fluid. (70kg patient = approximately 2l fluid)**
5	**Check serial lactate levels. Lactate >4.0 represents septic shock and should prompt a referral to critical care if does not respond to fluid resuscitation.**
6	**Measure urine output and record on fluid balance chart.** May need urinary catheter.
plus 1	**If the woman has an ongoing pregnancy monitor fetal wellbeing by CTG (beyond 26 weeks gestation). Delivery should be expedited if chorionamnionitis is the source of infection or with any source of sepsis if the maternal condition does not improve with treatment.**

ANTIBIOTICS FOR ABUHB

IV Tacozin 4.5g TDS

If penicillin allergy – IV Imipenem 500mg TDS

CONTINUING CARE

- Retained products of conception should be removed as soon as the maternal condition is stable

- Observations

    - Monitor respiratory rate, pulse, BP and O2 saturations every 15 mins until stabilised, then reduce to 30 mins ○

    Recheck temperature at least 4-hourly

    - Urinary catheter should have urometer for hourly urine output measurement

RESPONSE TO TREATMENT

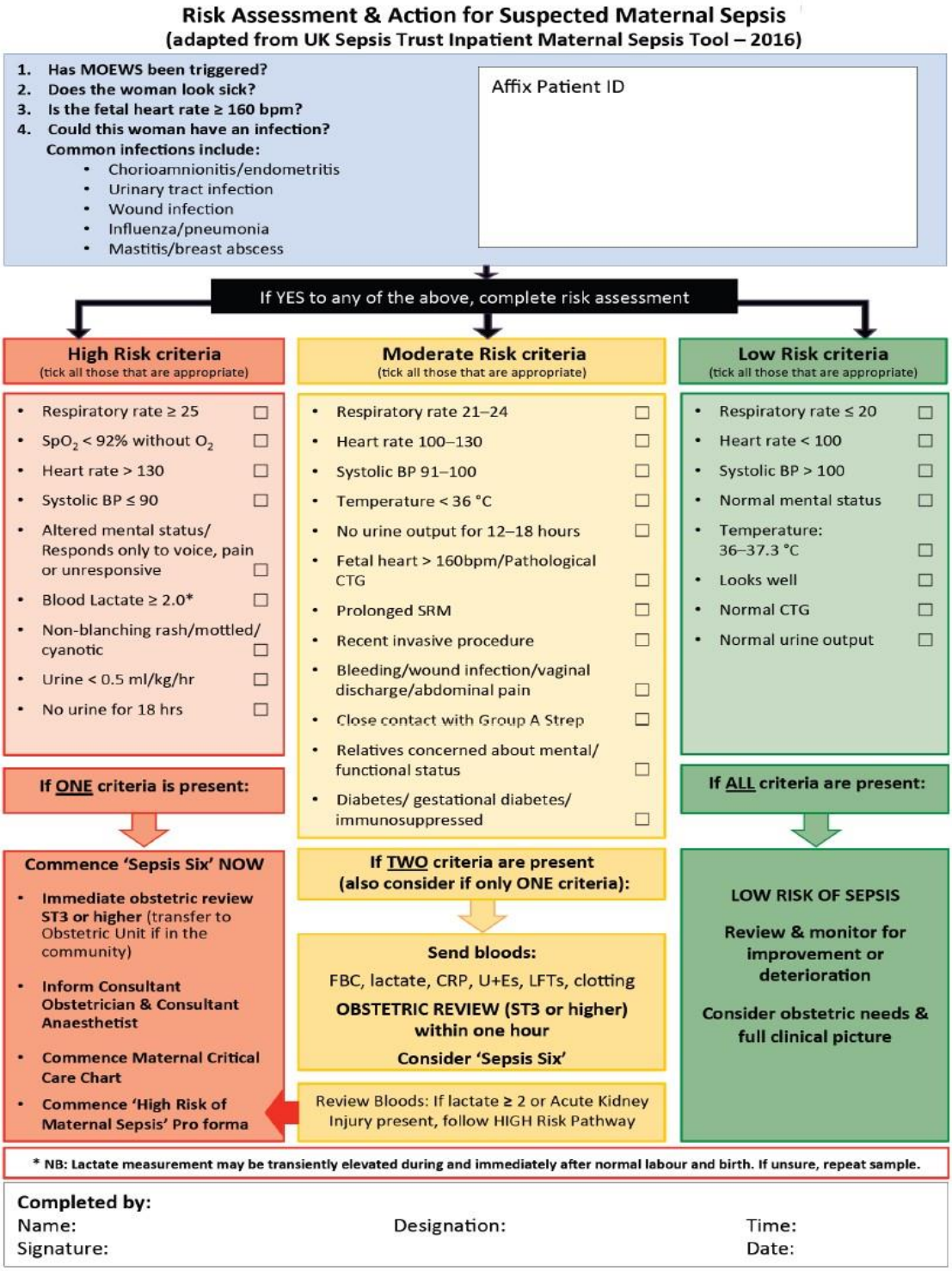
In those women starting the sepsis 6 pathway a clinical response should be evident within 1 hour of completion of fluid resuscitation and giving intravenous antibiotics

Failure to respond to treatment is consistent with:
• Systolic BP <90mmHg
• Reduced level of consciousness
• Respiratory rate >25
• Lactate not reduced by at least 25%

Alert a consultant to attend in person if the woman fails respond to treatment

THROMBOPROPHYLAXIS

Pregnant and postpartum women with sepsis are at increased risk of venous thromboembolism and should be given thromboprophylaxis with low molecular weight heparin unless there are any ongoing issues with haemostasis or coagulopathy.


Risk Assessment & Action for Suspected Maternal Sepsis
(adapted from UK Sepsis Trust Inpatient Maternal Sepsis Tool – 2016)
1. Has MOEWS been triggered?
2. Does the woman look sick?
3. Is the fetal heart rate ≥ 160 bpm?
4. Could this woman have an infection?
Common infections include:
• Chorioamnionitis/endometritis
• Urinary tract infection
• Wound infection
• Influenza/pneumonia
• Mastitis/breast abscess
Affix Patient ID
If YES to any of the above, complete risk assessment
High Risk criteria
(tick all those that are appropriate)
• Respiratory rate ≥ 25
• SpO2 < 92% without O2
• Heart rate > 130
• Systolic BP ≤ 90
• Altered mental status/ Responds only to voice, pain or unresponsive
• Blood Lactate ≥ 2.0*
• Non-blanching rash/mottled/ cyanotic
• Urine < 0.5 ml/kg/hr
• No urine for 18 hrs
Moderate Risk criteria
(tick all those that are appropriate)
• Respiratory rate 21–24
• Heart rate 100–130
• Systolic BP 91–100
• Temperature < 36 °C
• No urine output for 12–18 hours
• Fetal heart > 160bpm/Pathological CTG
• Prolonged SRM
• Recent invasive procedure
• Bleeding/wound infection/vaginal discharge/abdominal pain
• Close contact with Group A Strep
• Relatives concerned about mental/ functional status
• Diabetes/ gestational diabetes/ immunosuppressed
Low Risk criteria
(tick all those that are appropriate)
• Respiratory rate ≤ 20
• Heart rate < 100
• Systolic BP > 100
• Normal mental status
• Temperature: 36–37.3 °C
• Looks well
• Normal CTG
• Normal urine output
If ONE criteria is present:
Commence 'Sepsis Six' NOW
• Immediate obstetric review ST3 or higher (transfer to Obstetric Unit if in the community)
• Inform Consultant Obstetrician & Consultant Anaesthetist
• Commence Maternal Critical Care Chart
• Commence 'High Risk of Maternal Sepsis' Pro forma
If TWO criteria are present
(also consider if only ONE criteria):
Send bloods:
FBC, lactate, CRP, U+Es, LFTs, clotting
OBSTETRIC REVIEW (ST3 or higher) within one hour
Consider 'Sepsis Six'
Review Bloods: If lactate ≥ 2 or Acute Kidney Injury present, follow HIGH Risk Pathway
If ALL criteria are present:
LOW RISK OF SEPSIS
Review & monitor for improvement or deterioration
Consider obstetric needs & full clinical picture
* NB: Lactate measurement may be transiently elevated during and immediately after normal labour and birth. If unsure, repeat sample.
Completed by:
Name:
Designation:
Time:
Signature:
Date:

High risk of Maternal Sepsis Pro forma

(adapted from the UK Sepsis Trust Inpatient Maternal Sepsis Tool - 2016)

Affix Patient ID

CALL FOR HELP and complete ALL 'SEPSIS SIX' ACTIONS within ONE HOUR Time zero:

Action	Time completed & initials	Reason not done/ variance/comments
1. Administer 100% OXYGEN ○ 15 L/min via non-rebreathe mask ○ Aim to keep saturations > 94%		
2. Take BLOOD CULTURES *(but do not delay administering antibiotics)* ○ Also consider sputum/urine/HVS/throat swab/breast milk sample/wound swab/stool sample, etc		
3. Take bloods – CHECK SERUM LACTATE ○ If venous lactate raised, recheck with arterial sample ○ Discuss with critical care if lactate ≥ 4mmol/L ○ Continue to check serial serum lactates to monitor response to treatment (& FBC, CRP, U+Es, LFTs, clotting)		
4. Give IV BROAD SPECTRUM ANTIBIOTICS (as Trust protocol) ○ Administer ASAP, consider allergies ○ Aim to take blood culture first but do not delay antibiotics if culture bottles not available		
5. Give IV FLUID THERAPY ○ If lactate ≥ 2mmol/L give 500mL stat ○ If hypotensive or lactate ≥ 4mmol/L can repeat boluses up to 30 mL/kg (e.g. 2 L for a 70 kg woman) ○ Extreme caution if woman has pre-eclampsia: discuss with anaesthetist		
6. Accurate MEASUREMENT OF URINE OUTPUT ○ Urinary catheter & hourly measurement ○ Document fluid balance record		

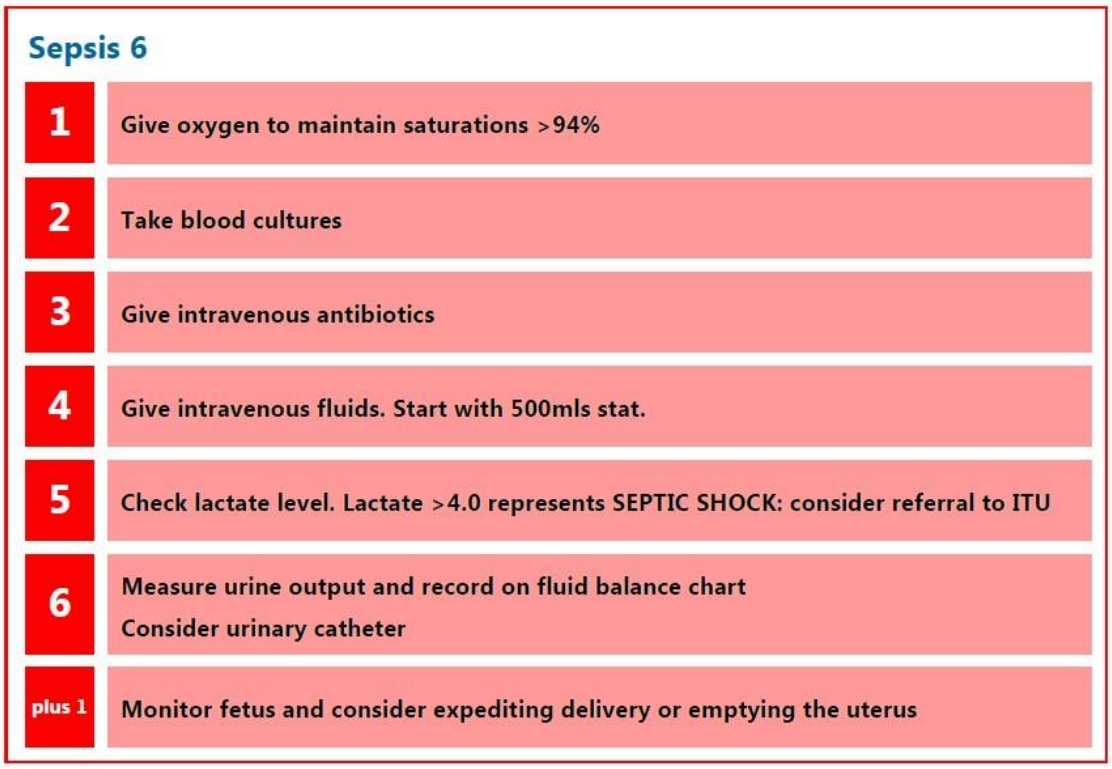
If after 'Sepsis Six': systolic BP remains < 90mmHg, level of consciousness remains altered, respiratory rate > 25, lactate not reducing (or was previously ≥ 4mmol/L), refer IMMEDIATELY to Critical Care Team

Also consider:
- ○ If antenatal – monitor fetal heart rate/commence CTG
- ○ Remove the source of infection e.g. retained products, expedite birth
- ○ Refer to Critical Care Team

Document actions taken:

Maternal Sepsis requires multi-professional team input from: (tick staff contacted)

- Midwife coordinator ☐
- Senior/Consultant obstetrician ☐
- Senior obstetric anaesthetist ☐
- Microbiologist ☐
- Intensive/critical care team ☐



34 Late Intrauterine death

Introduction and definition

Delivery of a fetus with no signs of life known to have died after 24 completed weeks of gestation. Prior to 24 weeks it is classified as miscarriage.

Diagnosis

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

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 considered
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

Timing of delivery

Parents and family may need time to accept the diagnosis.
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. Immediate IOL offered. Prolonged delay results in reduced quality postmortem findings due to alteration of the appearance of the fetus (maceration) As
risk of DIC – need daily bloods (coag) until delivery

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

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 Misoprostol 50 mcg 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.
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 woman with single previous scar.
Women with > 2 LSCS or atypical scars should be advised that the safety is unknown.
Preferred regime:
Mifepristone 200mg TDS for 2 days or Mifepristone 600mg once daily for 2 days
If still labour not established – give vaginal Misoprostol 50 mcg 4th hourly x 4 doses
Syntocinon augmentation should be a consultant decision.

Isoimmunisation prevention

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 48hours 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.

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 nonpharmacological 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 test. Following should be considered:
FBC
Kleihauer test
Blood group and antibody screen
Coagulation and fibrinogen (abruption, DIC) – daily
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 (hydrops)
Anti-Ro abd anti-La Ab (hydrops, 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)

Postmortem

Consent for postmortem (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, postmortem 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 PM examination is requested or not

Support and follow up

Use the checklist for investigations and procedure/checklist for midwives to make sure all paperwork has 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
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.

Ensure all antenatal clinic appointments are cancelled

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. Please use the SANDS birth certificate to mark the birth of the baby.

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 and 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
2. Best Practice in Labour Ward and Delivery Arulkumaran, Warren. Cambridge Press 2010
3. Obstetrics and Gynaecology: An evidence-based text for the MRCOG Luesley and Baker. 2nd Edition 2010
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5. Medical Management of late intrauterine death using a combination of Mifepristone and Misoprostol. Wagaarachchi et al BJOG 2002
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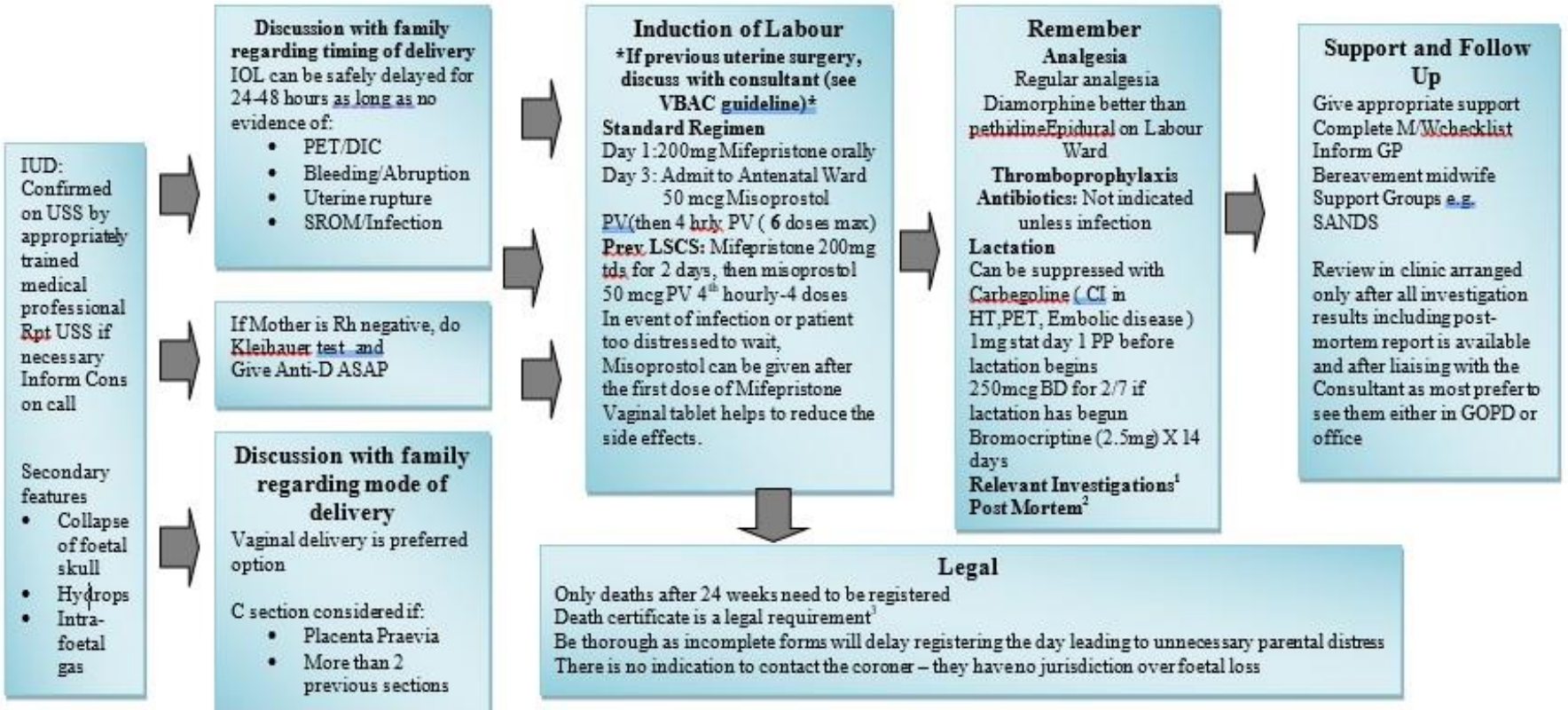

FBC, Kleihauer, Blood Group and antibody, Coag screen, Random glucose, HbA1c, U&E's, LFT's, CRP, Bile acids, MSU, Blood cultures, TORCH serology, Parvo virus, Maternal and paternal blood for Karyotyping, Thrombophilia screen (at 12 weeks post natal) , TFT's, Triple swabs, Placenta for histology and Karyotyping, 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

Appendix 1 Local Anaesthetic toxicity

TREATMENT TO DO THIS

SIGNS OF SEVERE TOXICITY:

- SUDDEN ALTERATION IN MENTAL STATUS, SEVERE AGITATION OR LOSS OF CONSCIOUSNESS, WITH OR WITHOUT TONIC-CLONIC CONVULSIONS
- CARDIOVASCULAR COLLAPSE: SINUS BRADYCARDIA, CONDUCTION BLOCKS, ASYSTOLE AND VENTRICULAR TACHYARRHYTHMIAS MAY ALL OCCUR
- LOCAL ANAESTHETIC (LA) TOXICITY MAY OCCUR SOME TIME AFTER AN INITIAL INJECTION
- STOP INJECTING THE LA
- CALL FOR HELP
- MAINTAIN THE AIRWAY AND, IF NECESSARY, SECURE IT WITH A TRACHEAL TUBE
- GIVE 100% OXYGEN AND ENSURE ADEQUATE LUNG VENTILATION (HYPERVENTILATION MAY HELP BY INCREASING PLASMA PH IN THE PRESENCE OF METABOLIC ACIDOSIS)
- CONFIRM OR ESTABLISH INTRAVENOUS ACCESS • CONTROL SEIZURES: GIVE A BENZODIAZEPINE, THIOPENTAL OR PROPOFOL IN SMALL INCREMENTAL DOSES
- ASSESS CARDIOVASCULAR STATUS THROUGHOUT
- CONSIDER DRAWING BLOOD FOR ANALYSIS, BUT DO NOT DELAY DEFINITIVE

IN CRCULATORY ARRET• START CARDIOPULMONARY RESUSCITATION (CPR) USING

Obstetric Haemorrhage – ABUHB Scribe sheet

Time of call-out……. Call out by…… Date……

Drug	Dose	Time
Syntocinon	10iu	
Ergotmetrine or	500 mcg/ 1amp (if BP normal) IM/ 5 IU/0.5 mg IM) repeat bolus of above	
Syntocinon	40iu in 500ml normal saline IV via IVAC pump @ 125mls/hr	
Carboprost	250mcg/1 amp IM	
Carboprost	250mcg/1 amp IM	
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Carboprost	250mcg/1 amp IM	
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Carboprost	250mcg/1 amp IM	
Carboprost	250mcg/1 amp IM	
Misoprostol	200mcg x 5 tablets rectally	

Team member	Name	Time arrived
On-call obs cons		
On-call obs SpR		
On-call obs SHO		
On-call anaes con		
On-call anaes SpR		
On-call ODP		
Blood Porter		
On-call gyna SHO		
Midwife		
Midwife		
Blood bank Tech		

Blood sent	Time	Observations		
		Time	Pulse	BP
FBC				
Group and Crossmatch units				
4 Thrombin Clotting				

S Fibrinogen					
Placenta delivered Yes ↑No↑					
Urinary catheter with urimeter					
Factor v11a in consultation with haematologist					
Fluids					
Type	**Volume**	**Time**			

Initial Management	**Time**
Call for Help	
Airway, Breathing, circulation checked	
Oxygen given (151/ Min)	
Venflon No 1 (14-16G)	
Venflon No 2 (14-16G)	
Birth Center / Homebirth	
1.Tone Contraction rubbed up	

2.Tissue Placenta Membrane Checked	
3.Trauma Examination for trauma	
Bi Manual Compression applied	
Ambulance called	
Arrival at Hospital	
Transfer to Theatre	