Reference Number: UHBOBS070 Version Number: 6	**Date of Next Review:** **Previous Trust/LHB Reference Number:**

Title: INDUCTION OF LABOUR GUIDELINE

Introduction

Induction of labour is the process of artificially stimulating the uterus to start labour. This can be accomplished by administering oxytocin or prostaglandins to the pregnant woman or by manually rupturing the amniotic membranes. Women should be appropriately counselled and must be involved in the decision making for Induction of labour.

Objectives

To provide guidance for all health professionals caring for a woman in the process of induction of labour

Executive Summary

All booked inductions should be categorised using the RAG rating system to enable better organization and prioritization of care.

Criteria for outpatient inductions has been expanded. This guideline includes a Standard Operating Procedure (SOP) for the low risk induction pathway which enables low risk women to deliver on MLU following successful induction.

Maternal observations should be performed pre and 30 minutes post pethidine administration, then 2 hourly thereafter for 4 hours.

Fetal wellbeing should be assessed using cardiotocography prior to administration of pethidine and Entonox, and uterine activity by palpating the uterus for 10-15 minutes.

Entonox should only be used for difficult examinations or as part of transfer to Delivery Suite. It should not be routinely used as analgesia during induction.

Hourly IIA should be performed where there is contraction frequency greater than 2:10.

Scope

This policy applies to all healthcare professionals in all locations including those with honorary contract

Equality Health Impact Assessment	*An Equality Health Impact Assessment (EHIA) has not been completed.*

Documents to read alongside this Procedure	
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Disclaimer

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

Summary of reviews/amendments

Version Number	Date of Review Approved	Date Published	Summary of Amendments
1	August 2009	Abi Kaye Band 7 Midwife	
2	August 2012	Pina Amin	
3	February 2014	P Amin, A Holmes	
4	January 2016	A Holmes	
5	November 2019	Y Nicholson, Louise Protheroe Davis on behalf of IOL working group.	Inclusion of mechanical methods to induce labour and protocol for outpatient IOL.
5a	21st August 2020	Ruba Halabi	Inclusion of management of SROM following prostaglandins. Reformatting in line with 'Writing a Guideline'.
5b	10th September 2020	Ruba Halabi	Inclusion of Dilapan SOP.

5c	March 2021	Helen Lawrence	Inclusion of Dilapan SOP as Outpatient Induction of Labour
6	16th November 2022	Lauren Day	Dilapan to be offered as first line induction agent Inclusion of guidance for fetal surveillance and maternal observations Inclusion of guidance for analgesia use during IOL Inclusion of management of delays in booking and ongoing IOL Removal of guidance for IOL with Foley's catheter Inclusion of expanded criteria for outpatient IOL Inclusion of SOP for MLC induction pathway Inclusion of discussion tools for women wishing to delay IOL for post dates or SROM Inclusion of RAG rating system for booking and cancelling IOL
7	7th February 2024	Lauren Day	Change to CTG monitoring post Dilapan from 6 hourly to BD unless otherwise indicated Guidance around CTG monitoring post prostaglandins if patient requiring use of toilet ARM can be performed on Induction Ward or MLU on MLU induction pathway.

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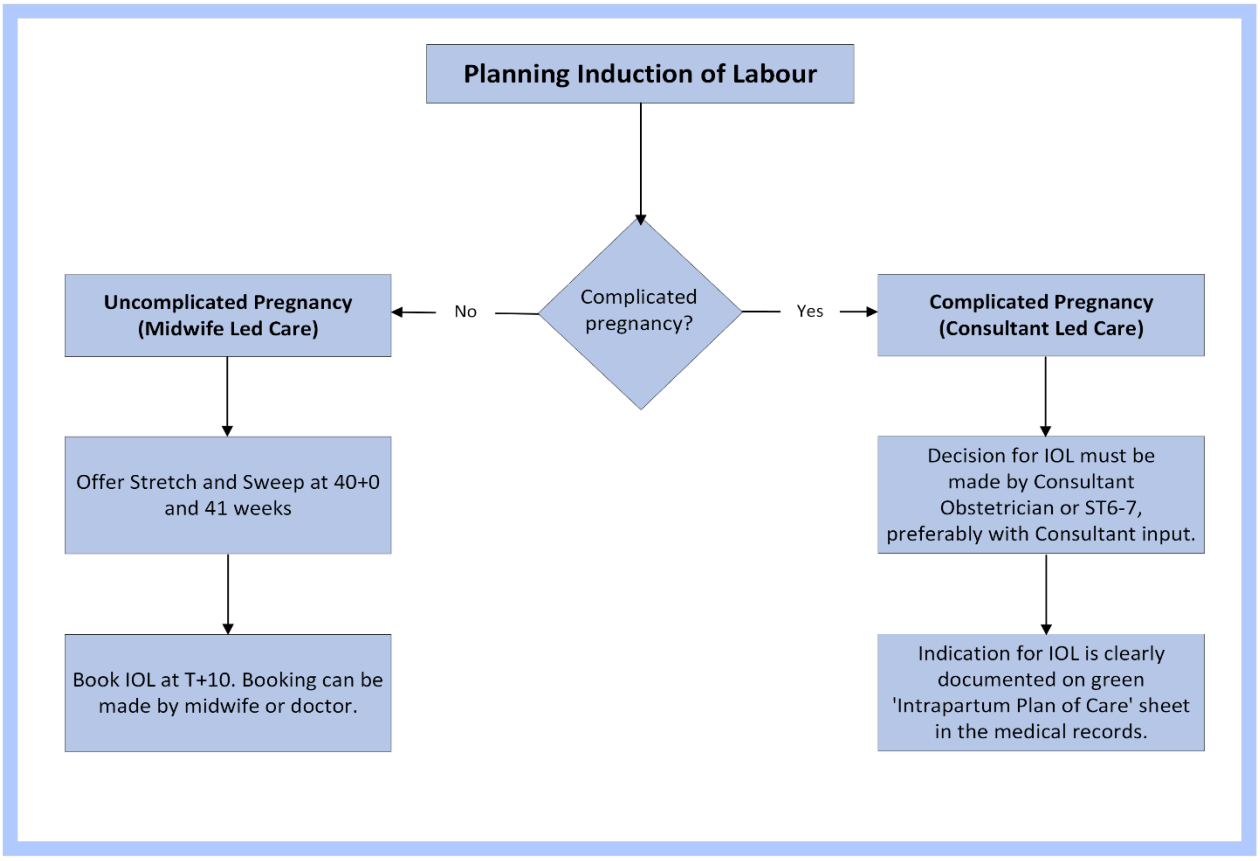
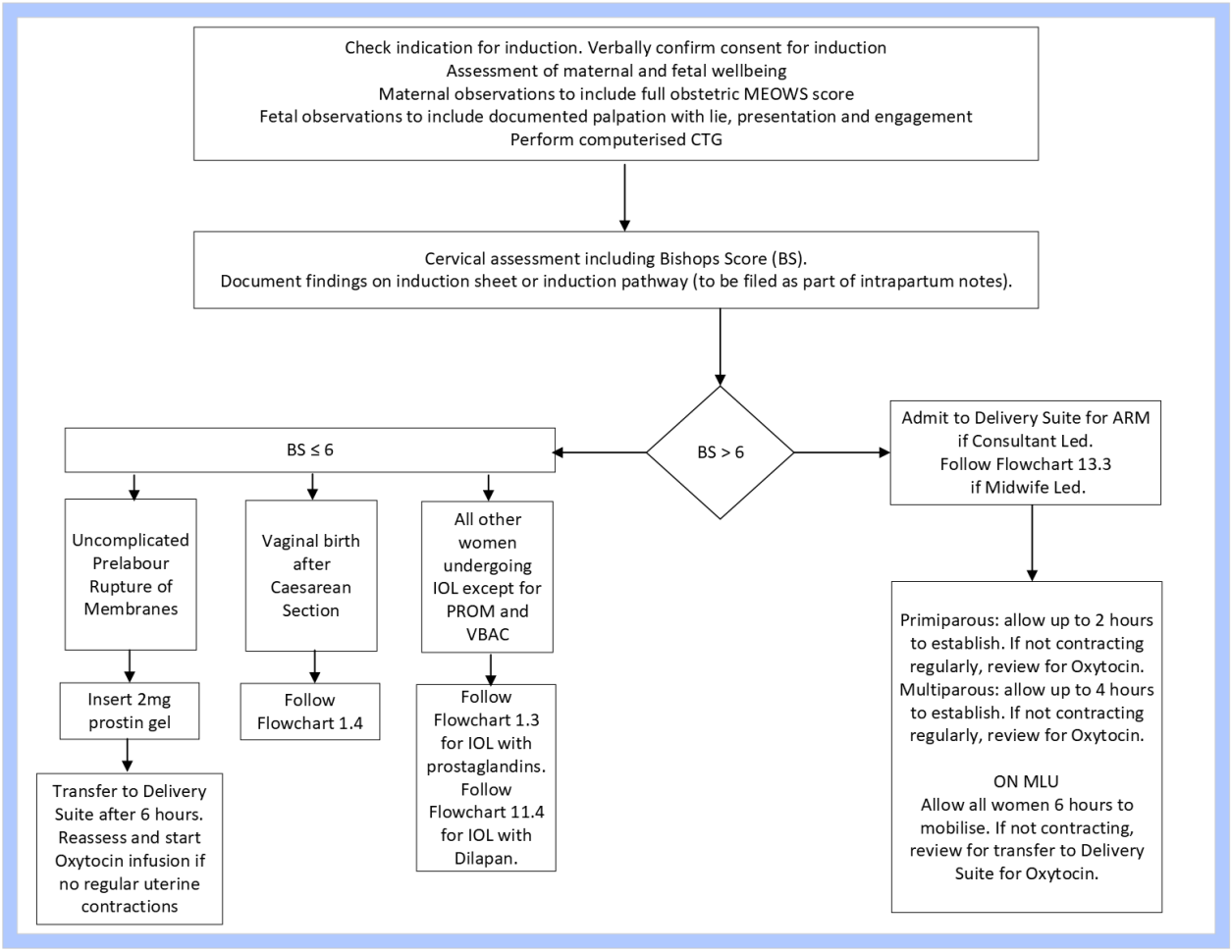
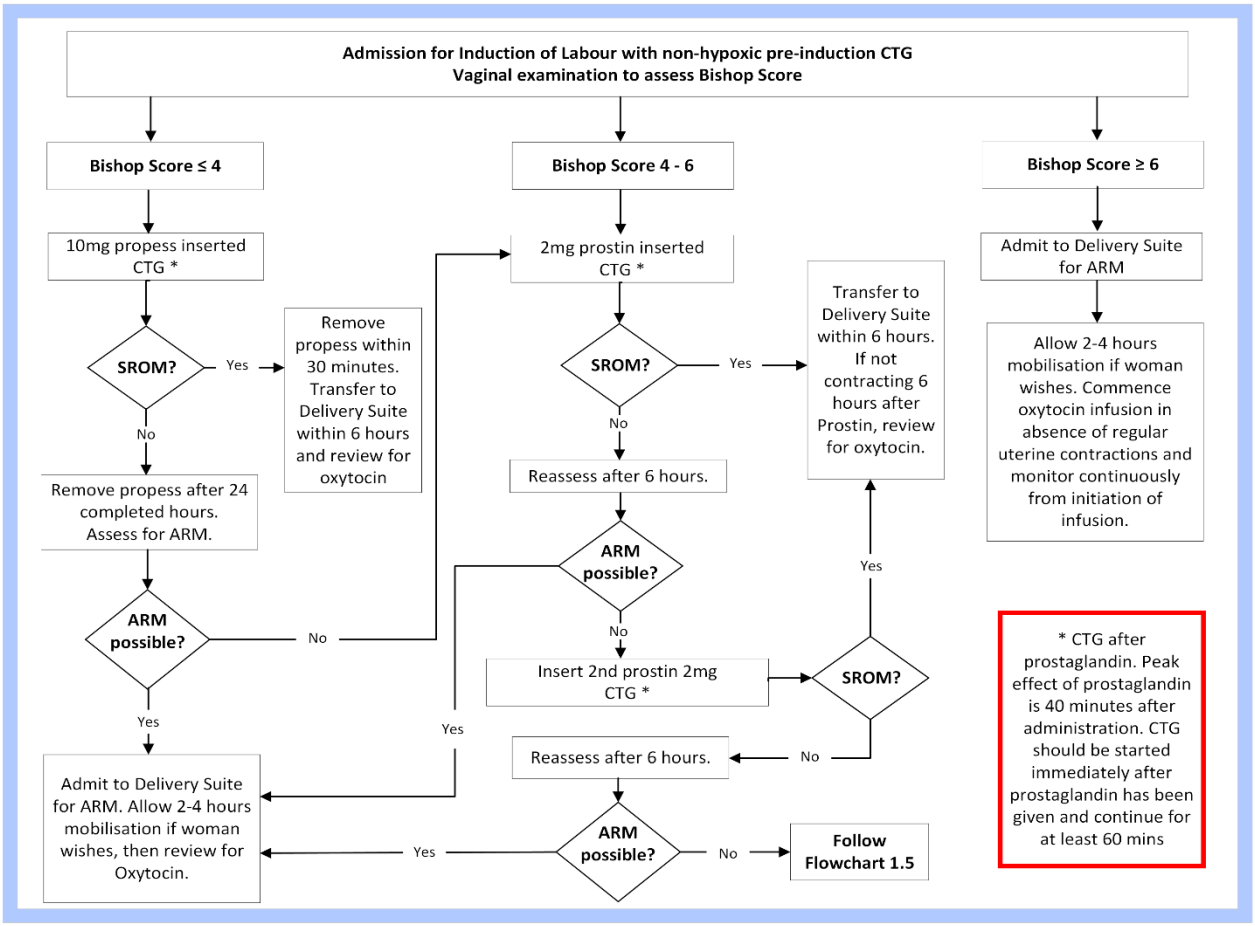


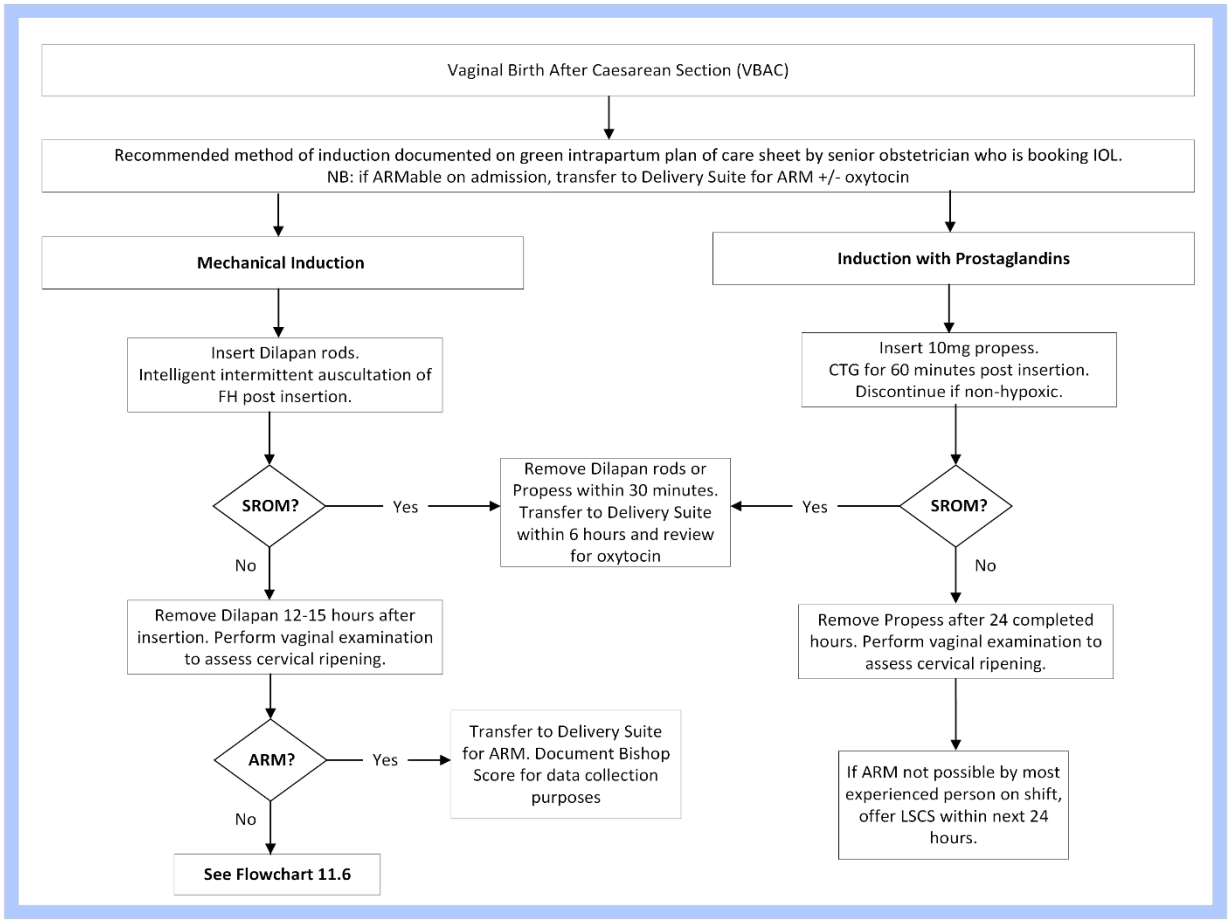
1.2 Methods and Procedure of Induction of Labour



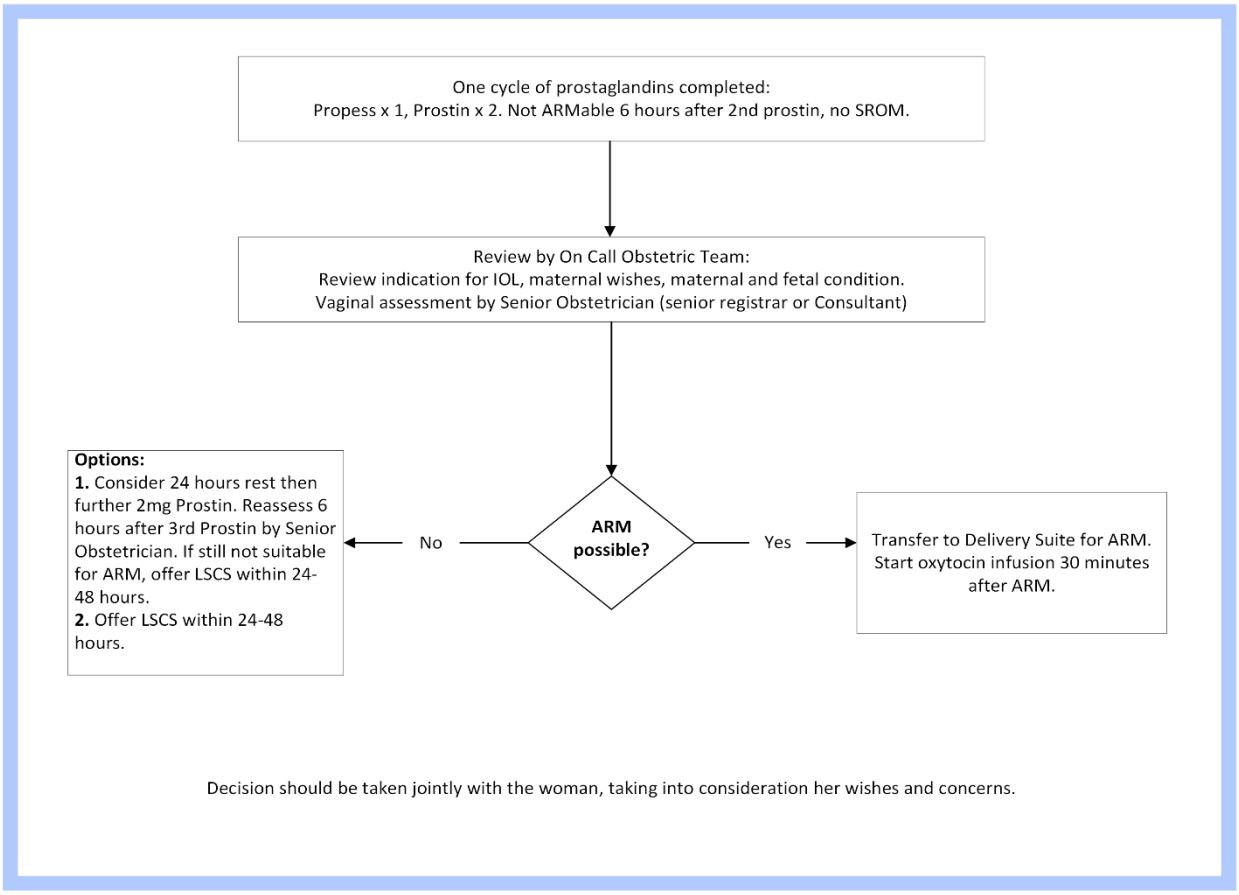
1.3 Induction of Labour with Prostaglandins (not PROM or VBAC)



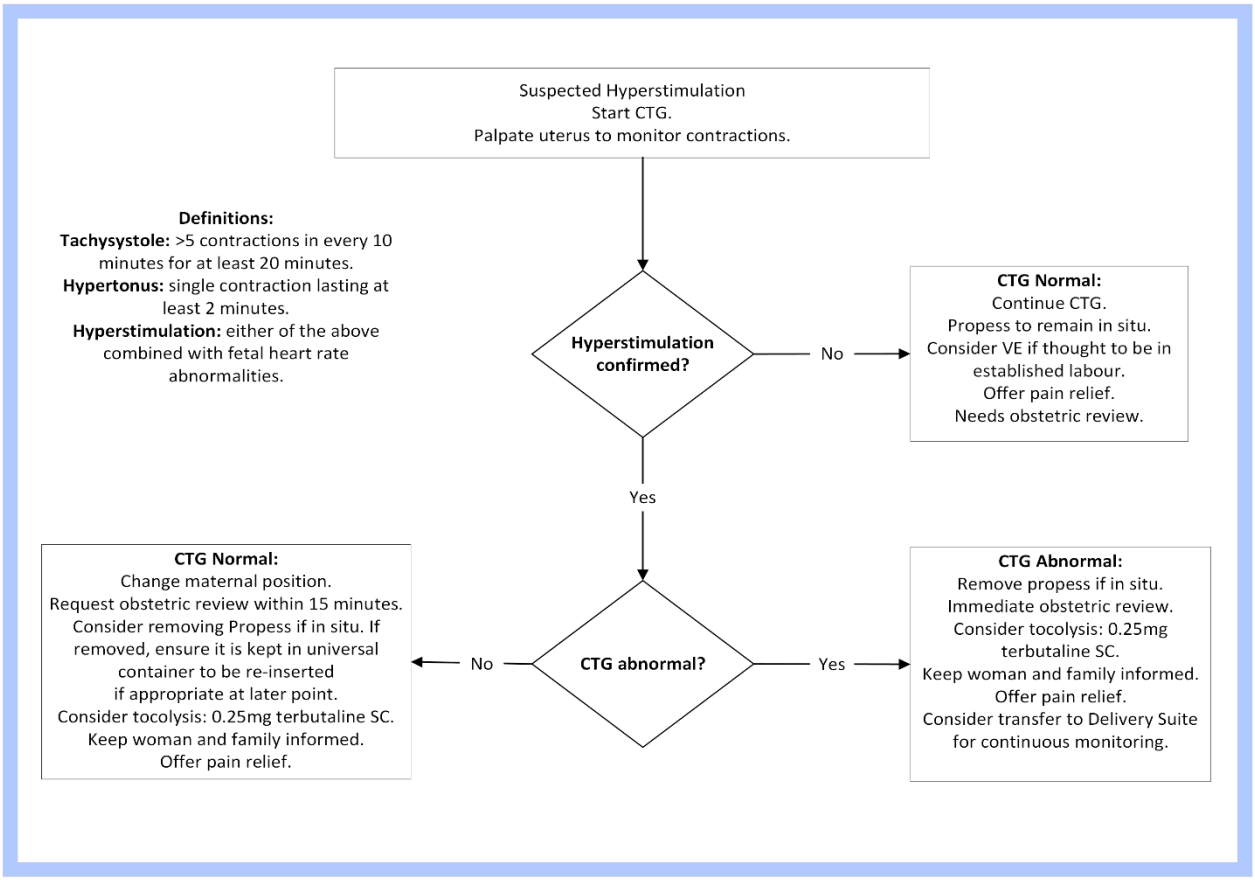
1.4 Induction of Labour after Caesarean Section



1.5 Failed IOL after one cycle of prostaglandins (not VBAC)



1.6 Management of uterine hyperstimulation



The words 'woman' and 'women' have been used throughout this document as this is the way the majority of those who are pregnant and having a baby will identify. For the purposes of this document, this term also includes people whose gender identity dose not correspond with their birth sex or who may have a non-binary identify (RCOG 2022)

2 Overview

Induction of labour is the process of artificially stimulating the uterus to start labour. This can be accomplished by administering oxytocin or prostaglandins to the pregnant woman or by manually rupturing the amniotic membranes.

Induction of labour should only be performed when there is clear medical indication for it and the expected benefits outweigh its potential harms.

Women should be appropriately counselled and must be involved in the decision-making. An induction of labour proforma should be used during this discussion.

2.1 Objectives

This document is for use by all the Cardiff and Vale University Health Board employees working in and alongside the Women's Health Directorate caring for all women who require induction of labour.

2.2 Definitions/ Abbreviations

IOL: Induction of labour
Propess®: The trade name for the drug dinoprostone 10 mgs, used for the initiation of cervical ripening
Prostin®: The trade name for the drug dinoprostone 2 and 3mg vaginal gel/tablets.
ARM: Artificial rupture of membranes
S & S: Stretch and sweep of membranes
PPROM: Preterm premature rupture of membranes
PROM: Prelabour rupture of membranes
Syntocinon®: The trade name for the synthetic drug oxytocin, a natural hormone. It works by stimulating the muscles of the uterus to produce regular contractions.
Terbutaline: β2 adrenergic receptor agonist. It is used as a tocolytic, prevents and slows down uterine contractions.
Dilapan: A non-pharmacological synthetic rod which is inserted into the cervical canal and through the internal os, for cervical ripening
One cycle of IOL agents: 1 propess and up to 2 prostin or 1 round of Dilapan and up to 2 prostin

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3 Roles and responsibilities

3.1 Midwife

- To provide the majority of care for women during IOL in accordance with UHW standards.
- Provide Induction of Labour information to women and to explain why sweeping of the membranes is recommended and perform the “sweep” in accordance with guidance
- To identify any deviations from normal regarding either woman or baby and escalate appropriately
- Ensure all appropriate documentation is completed which must include documentation of delays in care and reasons for delay

3.2 Labour Ward Co-Ordinator

- To allocate staff that have the skills and competencies to meet the needs of the individual women
- Assist midwives to refer women to the obstetric staff as required
- To aid the senior obstetric team to prioritise women awaiting transfer to Delivery Suite.

3.3 Obstetric Medical Staff

- Provide Induction of Labour information to women.
- Ensure all appropriate documentation is completed and IOL agents are prescribed.
- Ensure woman has been given a RAG rating as per tool in appendix.
- Book admission date to First Floor and provide woman with contact details
- Women being induced for medical reasons should be reviewed at starting the process of induction and have an individual management plan made. This plan must include fetal assessment and timing of next review.
- Following discussion with the Labour ward Coordinator; Senior Obstetric staff (ST6-7 or above) will prioritise the women awaiting transfer to Delivery Suite and document in medical records.

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4 Indication for IOL/ Special Circumstances

All inductions should be categorised according to the RAG rating tool in appendix D.

- All women rated RED will be offered induction within 24 hours
- Women with >2 amber risk factors should be rated RED (Level 1) and should be offered induction within 24 hours.
- All women rated AMBER will be offered induction within 24-48 hours – this may be altered depending on clinical presentation
- All women rated GREEN will be offered induction of labour within 48-72 hours – this may be altered depending on clinical presentation.

4.1 Prolonged pregnancy

Women with uncomplicated pregnancies should be offered IOL from T+10 days onwards. This will continue until such a time that Cardiff and Vale UHB can safely accommodate recent NICE guidance (2021) which recommends offering induction for prolonged pregnancy without risk factors from 41 weeks.

4.1.1 Women wishing to delay IOL at or after 42 weeks

If a woman chooses to delay induction of labour after 42 weeks, her decision should be respected. Women who delay IOL should be offered a referral to Birth Choices and increased fetal surveillance by twice weekly cardiotocograph (CTG) and ultrasound (USS) liquor volume assessment. An appointment for USS needs to be made as close as possible, but no later than 42+0.

Women should be informed that CTG's and USS are used to inform decision making process and cannot be used to predict future wellbeing. Fetal surveillance may further increase after 43 weeks following an individual risk assessment with an obstetrician.

Any woman choosing to delay induction of labour can change her mind about her chosen care package at any time. If a woman chooses to labour outside of the Obstetric Unit after 42^{+0} the midwife providing intrapartum care should record labour care and discussions on a continuation sheet in addition to a partogram. The woman should be provided with information on the progress of her pregnancy and labour in order that she can make informed decisions on her care.

Risks associated with delayed induction should be discussed using Appendix B. A copy of the discussion sheet should be filed in the maternity notes.

4.2 Obstetric / Medical / Surgical complications

4.2.1 In the presence of obstetric complications

Refer to relevant guidelines for the management of individual obstetric conditions including hypertensive disorders, diabetes in pregnancy among others. In pre- existing diabetes delivery should be planned between 37 and 40 weeks gestation (NICE,

2015). This will either be by induction of labour or by Caesarean Section depending on obstetric considerations.

4.2.2 In the presence of medical/ surgical complications

When there are significant recognised risk factors present, the decision, method and timing of the intervention should be taken by a senior obstetrician.

4.3 Maternal request for IOL

Maternal request for IOL can be considered when there are compelling psychological and/or social reasons. This unit supports maternal request induction of labour from **39 weeks** onwards.

Current evidence suggests that IOL at 39 weeks is associated with improved perinatal outcomes, fewer maternal hypertensive disorders and a lower caesarean section rate. These cases should be few in number. Women should be treated individually following review with a Consultant Obstetrician.

In uncomplicated low risk pregnancies, a Consultant Obstetrician should review women requesting IOL at 39 weeks gestation and an outpatient IOL can be offered. Women should also be informed that if maternity unit acuity is high, the induction will be delayed if there aren't significant medical or obstetric concerns.

4.4 Prelabour rupture of membranes: preterm and term

IOL reduces the risk of infection following prelabour rupture of membranes. Timing of IOL and management will depend on gestation at which SROM occurs. Please follow relevant guidance on WISDOM.

Where SROM occurs after 34+0 weeks but before 37+0 weeks, discuss the options of immediate induction or expectant management until 37+0 weeks (NICE 2021). This discussion should include involvement from neonatal team regarding health outcomes for the neonate.

Women undergoing IOL for uncomplicated PROM should only be given 1 induction agent. Uncomplicated PROM is defined as spontaneous rupture of membranes for over 24 hours with clear or pinky liquor in a woman with no symptoms or signs of maternal infection or chorioamnionitis. Any swab results and urine culture results must be checked to confirm no evidence of infection.

All women with a Bishops score <6 should receive 2mg Prostin Gel. Vaginal examinations should be kept to a minimum but should be considered prior to transfer to Delivery Suite to prevent unnecessary transfers and delays in commencing IOL. SROM must be confirmed prior to booking IOL.

The presence of any amount of meconium (i.e. thin or thick) is a relative contraindication to the use of prostaglandins. Admission to delivery suite for augmentation with oxytocin should be considered first line.

4.4.1 Group B Strep

After SROM at term and known GBS in pregnancy, immediate admission should be advised and induction of labour should be planned to commence as soon as practicable. Refer to WISDOM guidelines.

IOL can be offered from 34 weeks for women who SROM at <37/40 with known GBS in pregnancy following discussion with an obstetrician. Refer to WISDOM guidelines for management.

Intrapartum antibiotic prophylaxis (IAP) should be offered immediately to GBS positive women with confirmed SROM at term.

4.4.2 Women wishing to delay IOL after 24 hours of expectant management

Women wishing to delay induction of labour after 24 hours of expectant management following pre-labour rupture of membranes in absence of GBS should be counselled regarding the risk of infection. Use Appendix A as a record of your discussion with women and pregnant people about risk of infection when there is prolonged rupture of membranes. The sheet should be filed in the handheld maternity records.

4.5 Women with previous Caesarean birth

VBAC without additional risk factors is not an indication for induction and women should be informed of the increased risks of emergency CS and uterine rupture related to IOL (NICE 2008).

Women booked for IOL with previous CS should have an individualised plan in ANC by a senior Obstetrician. This should include the method for IOL, whether mechanical or with prostaglandins. VBAC proforma should be completed in antenatal clinic with these details. If her clinical condition changes, they should be seen again.

Options for IOL in women with one previous CS include membrane sweep, amniotomy, Propess or Dilapan. The use of prostaglandins and oxytocin increases the risk of uterine rupture in women with previous caesarean section.

4.6 Breech presentation

Induction of labour is not recommended if the baby is in the breech presentation (NICE 2008).

4.7 Small for Gestational Age / Abnormal Dopplers & Oligohydramnios

Refer to WISDOM guidelines for management of SGA fetus with regards to timing of IOL.

Severe SGA is defined as EFW below 3rd centile. IOL for severe SGA with normal liquor and UA Doppler may take place on North if the woman is suitable for Dilapan. If prostaglandins are required, IOL should take place on Delivery Suite with continuous monitoring which should be commenced when uterine contractions start.

IOL must take place on Delivery Suite where there is severe SGA with reduced liquor volume or absent UA.

Where EFW is above 10th centile with abnormal UA or reduced liquor volume, IOL may take place on North if the woman is suitable for Dilapan. IOL must take place on Delivery Suite if prostaglandins are required.

4.8 Precipitate labour

Induction of labour to avoid a birth unattended by healthcare professionals could be considered in women with a history of precipitate labour after counselling by a senior obstetrician at a gestation > 39 weeks.

4.9 Intrauterine Death

See respective guidance.

4.10 Fetal Macrosomia

Women with suspected fetal macrosomia in the absence of diabetes should not routinely be offered induction of labour. Options for birth should be discussed with women which include expectant management, induction of labour or caesarean birth.

Women should be involved in the decision-making. Use Big Baby Cochrane Chart, which is available in clinic. Ensure counselled about inherent error within scan EFW and that this is greater for ‘bigger’ babies.

If the EFW is above 97th centile on personalised GROW chart with a normal GTT, the pathway and counselling outlined in the ‘Fetal Growth Assessment’ guideline should be followed.

Woman with an EFW above the 97th centile on personalised GROW chart with a normal GTT can be considered for outpatient induction of labour if EFW < 4.5kg.

4.11 Maternal Age

There is evidence that women ≥40 years of age at conception have a similar stillbirth risk at 39 weeks of gestation to women in their mid-20s at 41 weeks of gestation. Therefore induction of labour can be offered from 39/40 to prevent late stillbirth. However, management of each case will be individualised by the consultant team depending on the woman's wishes, bishop score, parity and maternal choice and documented in maternity notes[15.3]

Latest research has found that women aged 35 or over having their first child and who were induced at 39 weeks had no higher risk of a caesarean (32%) than women who had standard wait-and-see care (33%) with intervention if necessary.

4.12 Recurrent reduced fetal movements

Induction of labour for reduced fetal movements can be offered from 39/40. Women who present with recurrent reduced fetal movements (2 or more presentations within 21 days) may be offered earlier IOL. Any decision to offer induction before 39/40 should be a consultant decision based on individual risk factors and cervical assessment. Women should be counselled on the benefits and risks of IOL at 39/40.

4.13 Obstetric Cholestasis

Refer to WISDOM guidelines for timing of IOL.

4.14 Multiple Pregnancy

Women with multiple pregnancy can be offered induction of labour to reduce the risk of stillbirth. Offer induction of labour from 37/40 for uncomplicated DCDA pregnancy and from 36/40 for uncomplicated MCDA pregnancy.

For complicated multiple pregnancies such as triplet pregnancy, refer to WISDOM guidelines for management.

4.15 Raised BMI

Induction of labour at term for obese women may reduce the chance of caesarean birth without increasing the risk of adverse outcomes. Refer to local BMI guideline for guidance on timing of IOL.

4.16 Antepartum Haemorrhage

In the event of APH, induction of labour may be considered to avoid adverse consequences associated with placental abruption. However, it is important to establish if bleeding is an APH or blood stained 'show' as spotting or blood streaked through mucus is unlikely to require active intervention.

Induction of labour should only be offered following discussion with a consultant and method of induction (i.e. mechanical or prostaglandins) should be clearly documented.

4.17 Prematurity

Women undergoing induction of labour at <37/40 should have an individualised management plan regarding method and place of induction. This should be documented on the green intrapartum sheet in the front of the handheld notes.

****Any patient with multiple high-risk factors should be considered for induction of labour on Delivery Suite****

5 Booking an IOL

Induction of labour should be booked using the referral form which can be accessed using this link. When sending a referral for an induction of labour, the clinician should ensure that the woman understands the referral will be reviewed and an appropriate date offered. If advising a woman that the induction 'must' take place on a specific day or at a specific gestation there may be unnecessary distress caused.

For urgent admissions that need to take place within the next 48 hours, please contact Induction Ward directly on x46185.

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6 Day of Admission

Women requiring induction of labour will be admitted to First Floor induction ward, except for high risk inductions where there is significant maternal or fetal compromise. These inductions may take place on Delivery Suite due to the requirement of continuous fetal monitoring when contractions start. If induction is required on delivery suite, this will be a Senior Obstetrician decision and should be clearly documented in the maternal notes.

Women with significant medical/ surgical risk factors should be reviewed by senior obstetrician (and anaesthetist where appropriate) prior to commencing induction.
If any clinical changes or concerns, discuss with senior obstetrician.
If bed capacity or neonatal unit is causing delay in commencement of IOL, the most senior obstetrician must make an individualised risk assessment available with clear documentation in the case notes.

All on-going IOL's must be recorded on the virtual handover. This must be updated on a regular basis and be part of the delivery suite morning handover.

Any telephone conversations with the woman, prior to admission, should be documented on E3.

6.1 Routine post dates for low risk women

If not already prescribed, medication should be prescribed in the drug chart. The midwives on the ward area can proceed with the IOL – they do not need any medical clerking.

6.2 IOL for maternal or fetal conditions

These women should be prescribed their IOL medications including analgesia in the antenatal clinic when they are booked for their IOL.

A clear plan must be documented in the notes. Provided there is a clearly documented obstetric plan for IOL, these women do not need to be clerked on admission to the induction ward.

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7 Assessment prior to IOL

7.1 Maternal and fetal monitoring

Prior to commencing the induction of labour process a full antenatal examination must be performed including:

- **Blood pressure**
- **Pulse**
- **Temperature**
- **Respiration rate**
- **Urine dip**
- **Abdominal palpation**
- **Auscultate the fetal heart rate with a Pinard stethoscope or sonic aid**
- **Computerised CTG (in absence of uterine activity)**
- **Discussion surrounding fetal movements, uterine activity and vaginal loss**
- **All maternal observations should be recorded on the Obstetric Early Warning Chart**

7.2 Methods and procedure of IOL

- **Membrane stretch and sweeping** involves the examining finger passing through the cervix to rotate against the wall of the uterus, to separate the chorionic membrane from the decidua. If the cervix will not admit a finger, massaging around the cervix in the vaginal fornices may achieve a similar effect.

- **Mechanical procedures** Dilapan should be considered for women undergoing IOL with SGA fetus, previous Caesarean birth or at maternal request.

- **Vaginal prostaglandins** Propess should be considered as first line agent for induction. Women with SROM should be offered Prostin.

- Women should be informed of both mechanical and prostaglandin methods of induction

- **Amniotomy** is the artificial rupture of the membranes

- **Mifepristone** followed by prostaglandins will only be used in IUD cases (see specific guidance please).

7.3 The Modified Bishop Score

The Bishop score should be calculated following each vaginal examination during the induction process as this guides choice of induction agent.

SCORE	0	1	2	3
Cervical dilatation	0	1-2	3	>3
Length of cervix	3	2	1	0
Station	-3	-2	-1/0	+1
Consistency	Firm	Medium	Soft	
Position	Posterior	Central	Anterior	

7.4 Membrane sweeping

After 39/40, discuss with women if they would like a vaginal examination for membrane sweeping. If so, obtain verbal consent before performing the membrane sweep (NICE, 2021).

Stretch and sweep should be offered to all women without SROM at least 24 – 48 hours **prior to IOL**. Consent should be taken and documented in the medical records. The Bishop Score of the cervix should be documented.

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8 Assessment during Induction of Labour

- Prior to vaginal assessment, both preparations of vaginal prostaglandins should be taken to the bedside. A computerised CTG should be performed to confirm fetal wellbeing and to assess uterine activity.
- Following assessment of Bishop score, the appropriate agent should be administered at this time and unused medication returned to appropriate storage.
- Following the administration of vaginal prostaglandins, the CTG should continue for 60 mins. The peak mechanism of action for prostaglandins is 40 minutes after administration. Discontinue CTG if it is classified as normal.
- Escalate to Delivery Suite co ordinator and obstetric staff if there are any concerns in the ability to perform fetal monitoring. Consider USS to confirm fetal wellbeing if there are sustained periods of loss of contact.
- Consider a mobile telemetry machine for women needing to use the toilet within 60 mins of prostaglandin administration.
- Medical review should be requested immediately if the CTG is not normal. Consider removing induction agent where possible and/ or administering terbutaline if there is any delay in review.
- Following the administration of Dilapan, if pre – induction CTG is normal, fetal heart rate may be auscultated with Pinard stethoscope or sonicaid using IIA.
- Computerised CTG can be used to assess fetal wellbeing prior to administration of all vaginal prostaglandins providing there is no uterine activity of any description.
- A full assessment of maternal and fetal wellbeing should be repeated regularly depending on the indication for induction and presence of uterine activity.
- Maternal observation should include: abdominal palpation, palpation of uterine activity, discussion regarding presence of fetal movements, review of changes to woman's behaviour, review of vaginal loss, BP/ pulse/ temp recorded on MEOWS chart.
- For women undergoing low risk induction of labour, maternal observations should be performed 12 hourly and documented on MEOWS chart. This should be re-evaluated if clinical picture changes.
- For women undergoing high risk induction of labour with spontaneous rupture of membranes or hypertension, maternal observations should be performed 4 hourly.
- CTG monitoring can be performed twice daily following insertion of Dilapan, unless an obstetrician has developed an individualised management plan for fetal monitoring.
- CTG monitoring should be performed at least 6 hourly following administration of prostaglandins. This should be increased to 4 hourly in presence of regular uterine activity.
- A full assessment of maternal and fetal wellbeing must be performed before the administration of analgesia (this includes co-codamol, use of water, Entonox or pethidine).
- In the presence of regular uterine activity where analgesia is required, hourly IIA should be performed. In the presence of a contraction rate greater than 2:10 minutes, consideration should be given to the frequency and method of fetal heart rate auscultation (CTG or IIA). Rationale for chosen method should be documented.

- A full assessment of maternal and fetal wellbeing, including CTG, would be indicated if the woman reports abdominal pain, painful uterine activity, vaginal bleeding, decreased fetal movements or spontaneous rupture of membranes (SROM).
- Assess fetal wellbeing using antenatal CTG interpretation. If the CTG is confirmed as normal, review the individual circumstances and if considered low risk, IIA may be used.
- Uterine activity should be assessed by abdominal palpation by the midwife, over a period of 10-15 minutes; clinicians are not to rely on the CTG.

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9 Analgesia Use during Induction of Labour

The following methods of analgesia should be regarded as an 'analgesia ladder'. For many women, support, information and self-help skills will be sufficient to enable them to cope with the pain of induced labour without the need for pharmacological intervention. All women should be offered non-pharmacological pain relief methods (e.g. TENS, bath) prior to administration of pharmacological analgesia.

Paracetamol

500mgs x 2 can be offered 4-6 hourly (maximum dose 4gms in 24 hours). This SHOULD NOT be given within 4 hours of co-codamol.

Co-codamol

8/500mgs x 2 can be offered 4-6 hourly and must be prescribed by a doctor (maximum dose 8 tablets in 24 hours). This SHOULD NOT be given within 4 hours of paracetamol.

There is no requirement for NAS obs with codeine use during induction of labour with short term use of up to 7 days as per current UHB guidance.

Pethidine

Pethidine should be given infrequently during induced labour and only following support, advice and information. An anti-emetic should be prescribed and administered simultaneously to pethidine.

Pethidine must be prescribed by a doctor for use during induced labour.

Consideration should be given to the woman's weight and pethidine dose may be decided according to the table below (maximum dose 200mg in 24 hours).

Weight	**Pethidine Dose**
Up to 50 kg	**50mg**
50-75 kg	**50/ 75mg**
75-100 kg	**75/ 100mg**
>100 kg	**Up to 100mg**

Fetal wellbeing should be assessed with CTG monitoring prior to administration of pethidine.

The MLU guidelines (2023) makes reference to this guidance with regard the administration of Pethidine in the latent phase of labour. Women birthing on the MLU do not need a CTG, but an IIA assessment of fetal wellbeing, prior to the administration of Pethidine. The on-going assessments as described below are the same.

A full holistic assessment should be performed hourly thereafter even if a woman is sleeping. This should include but is not limited to IIA, assessment of uterine activity and fetal movements. This should continue until uterine activity stops or falls below contraction rate of 2:10.

The midwife should remain astute to progress of labour. Vaginal examination should be considered prior to administration of pethidine to rule out established labour.

Maternal observations should be performed prior to and 30 mins after administration of pethidine. This should include HR, BP, RR, sedation and pain scores. This should be continued 2 hourly as per algorithm for intramuscular opioids (Appendix E).

If there are any concerns regarding sedation of woman, seek urgent medical attention. Administration of naloxone may be necessary to reverse the effects of pethidine (see algorithm in Appendix E).

Entonox

Entonox should not be routinely offered as analgesia during induction of labour due to the cumulative sedative effects of long-term use.

It may be used to help women who struggle with vaginal examinations or as part of the transfer process to Delivery Suite with established labour.

If a woman is requesting Entonox for analgesia during induction of labour, this should be escalated to delivery suite co-ordinator and transfer to CLU should be considered for 1-2-1 care. If a plan for transfer is not made within 30 minutes, please consider use of Escalation Policy (available on SharePoint).

Fetal wellbeing should be assessed with CTG monitoring prior to administration of Entonox with hourly IIA thereafter.

No specific maternal observations are required but regular wellbeing assessments should be performed at least hourly including assessment of uterine activity, fetal

movements, sedation and pain scores.

Vaginal examination should be considered prior to administration of Entonox to rule out established labour.

****Bedside curtains should be left open for women experiencing regular uterine activity and requiring pethidine or Entonox. If women decline, please document in maternal notes****

Epidural anaesthesia

This may be offered rarely and only following senior obstetric and anaesthetic involvement, usually combined with a decision to augment labour.

There is high level of evidence that intrathecal or epidural analgesia administered during early first stage of labour does not affect the progress of labour, mode of birth or immediate neonatal condition compared to administration later in labour.

Women in labour who desire regional analgesia should not be denied it, including women in severe pain during the latent first stage of labour (NICE 2007).

If a woman is requesting epidural for analgesia during induction of labour, this should be escalated to delivery suite co-ordinator and transfer to CLU should be considered for 1-2-1 care. If transfer is not possible, please consider use of Escalation policy (available on SharePoint).

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10 Management of Delays during Induction of Labour

10.1 Delays in admission

If there are maternity or neonatal unit capacity issues which are causing delays in admission for IOL, it may be appropriate to rearrange the induction for an alternate day. In this instance, the decision to cancel the induction must be made by a consultant obstetrician or IOL lead midwife and a DATIX should be completed.

If delays are ongoing for more than 72 hours for women with high obstetric or medical risk, it may be necessary to request in-utero transfer to another hospital but this decision MUST be made by the obstetric team.

Any telephone discussion with the woman as a result of this delay should be documented on E3, including confirmation of presence of normal fetal movements.

All booked inductions will be categorised according to RAG rating risk assessment tool in Appendix D:

- RED – If any delay in admission, offer fetal wellbeing assessment
- AMBER – If delay of >48 hours in admission, further risk assessment is required to confirm RAG rating.
- GREEN – If delay of >72 hours in admission, further risk assessment is required to confirm RAG rating.
- Risk assessment should include full fetal and maternal wellbeing assessment including CTG with a senior obstetric review. This may take place on Induction Ward or OAU depending on capacity.

10.2 Delays in ongoing induction

Women may experience delays during ongoing induction of labour due to unit capacity. This may include delay in administering IOL agents or transfer to delivery suite for labour augmentation. Women should be informed of any delays and for delays of >6 hours, a DATIX should be completed. All delays should be escalated as per the escalation policy.

Women should continue to have regular wellbeing assessments as per page 25. For delays of >24 hours, women should be given the opportunity to speak to a senior obstetrician. Plan of care should be discussed with the woman and documented in maternal notes.

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11 Induction with Prostaglandins

In the following situations induction of labour with Prostaglandins should only be used if authorised by a consultant:

- Uterine scar
- Cardiac, pulmonary, renal or hepatic disease
- Para 4 or greater
- Multiple pregnancy
- Severe IUGR

For women with asthma, consider prostaglandin E1 (misoprostol) or prostaglandin E2 (propess or prostin) as options for inducing labour.

11.1 Propess

Propess is 10mg of PGE2 in a hydrogel polymer pessary within a knitted polyester retrieval system. It is available mainly for use in primigravida with unfavourable cervix (Bishop Score <4). Propess will release 0.3mg/hr of active agent over 24 hours. Half-life is 1-3 minutes. Propess is stored in the freezer.

Propess is inserted high into the posterior vaginal fornix. Women should be advised to lie down for 30 minutes following insertion. The CTG should continue for 60 minutes after insertion. The retrieval tape should be placed inside the vagina to reduce the risk of the propess becoming dislodged or accidentally removed.

Propess can be removed by gentle traction on the retrieval tape. It should be removed either:

- After 24 completed hours in situ
- Within 30 minutes of SROM, even if it has not been in situ for 24 completed hours.
- At onset of labour, confirmed by vaginal examination
- Prior to Oxytocin infusion (Oxytocin can be commenced 30 minutes after removal)
- If evidence of uterine hyperstimulation (>5 contractions in 10 minutes for at least 20 minutes) **with** evidence of fetal distress, the decision to remove Propess should be agreed by SSHO/SpR.

11.1.1 If Propess is removed early or falls out, in absence of SROM

If the Propess falls out a second Propess can be inserted. Propess will only deliver a maximum dose of 0.3mg/hour therefore if the Propess is removed after 24 completed hours only 7.2mg will have been absorbed regardless of the number of pessaries used.

Therefore, the 24 hours is up when the Propess has been in situ for 24hours, not 24hours from first insertion.

11.2 Prostin Gel

Prostin contains 2mg PGE2 in gel form. For use where the Bishop Score is 4 – 6. Prostin is stored in the fridge and should be removed immediately prior to use.

- Prostin is inserted high into the posterior vaginal fornix. Women should be advised to lie down for 30 minutes following insertion. The CTG should continue for 60 minutes after insertion.
- Prostin Gel 2 mg can be repeated 6 hours after first insertion if ARM is not possible or difficult.
- A vaginal examination should be performed 6 hours after the second dose to assess Bishop Score and suitability for ARM. If the cervix at this stage is unfavourable for ARM then the opinion of a senior obstetrician should be sought (See Flowchart 1.5)

11.3 SROM following prostaglandin

If Propess is in situ, this should be removed within 30 minutes of a spontaneous rupture of membranes. A CTG should be commenced, and may be stopped after 30 minutes if it remains normal. No further prostaglandins should be administered. Transfer to delivery suite should occur within the next 6 hours.

If SROM occurs following administration of Prostin, commence CTG and continue for at least 30 minutes, after which it can be stopped if normal. It is important to note that oxytocin infusion should not be started within 6 hours of administration of Prostin.

Transfer to delivery suite should occur within 6 hours of SROM, but oxytocin should be delayed until at least 6 hours after the dose of Prostin.

Vaginal examinations should be kept to a minimum, and only performed on the induction ward if there are regular contractions and it is thought labour has established. Otherwise, transfer to delivery suite should be arranged as soon as practicable and within the next 6 hours. Once on delivery suite, vaginal examination should take place prior to starting oxytocin infusion. If forewaters are present, these should be ruptured artificially. Oxytocin infusion should then be commenced.

11.4 Adverse reactions following administration of prostaglandins

Women undergoing IOL with prostaglandins should be monitored closely for signs of adverse reaction. If an adverse reaction is suspected, immediate obstetric review should be requested and this should be escalated to the Delivery Suite co-ordinator.

Some of the known side effects are listed below:

Uncommon: Infection, headache, hypotension, pruritus, uterine atony, vaginal burning

Rare or very rare: Disseminated intravascular coagulation

Frequency not known: Abdominal pain, diarrhoea, genital oedema, nausea, uterine rupture, vomiting

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12 Mechanical Induction of Labour

12.1 Background

Induction of labour (IOL) is an obstetric intervention that has increased in frequency over recent years. In Wales in 2021 there were 19,450 deliveries with an IOL rate on average of 34% (1/2)

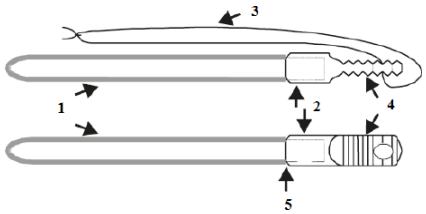
IOL is carried out when the risk of continuing the pregnancy outweighs the benefits. The child bearing population has, over recent years, become ever more complex which includes a variety of maternal and fetal indications for IOL (post term, PROM, hypertension, diabetes, maternal request and IUGR)

The cervix is comprised primarily of fibrous connective tissue with cellular and acellular components including collagen. Before labour commences this collagen breaks down which enables the cervix to soften and begin to dilate. When IOL is indicated this process may have not yet started to commence.

DILAPAN is a non-pharmacological synthetic rod which is inserted into the cervical canal and through the internal os, for cervical ripening. DILAPAN has multiple modes of action which works by exerting controlled pressure on the cervical wall dilating the cervix, partial reversible osmotic dehydration which softens cervical tissue and the promotion of natural prostaglandin release.

12.2 Dilapan description

The Dilapan-S is available individually packaged and sterilized.

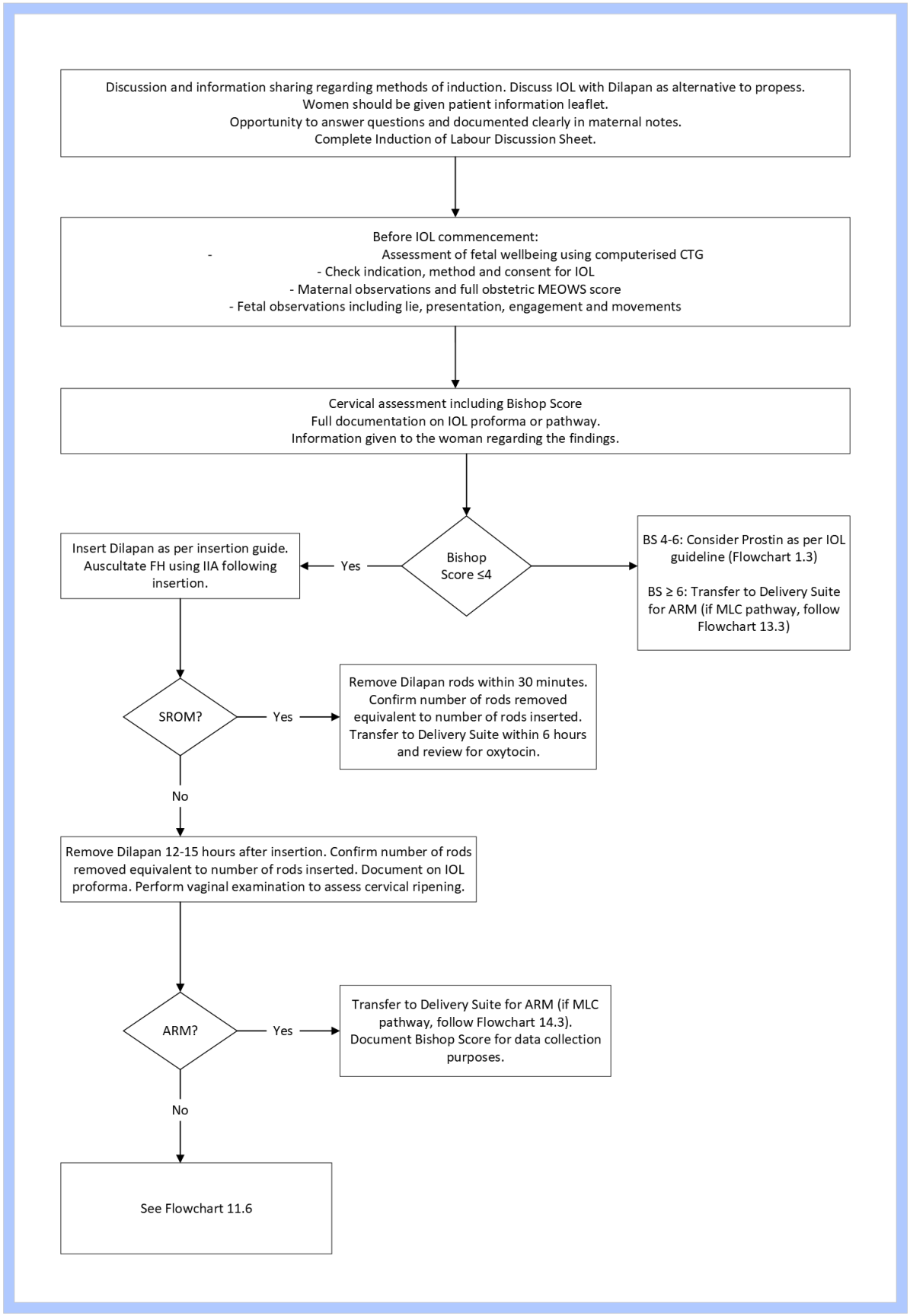


1. Dilating part made of hydrogel
2. Knob/collar
3. Marker string

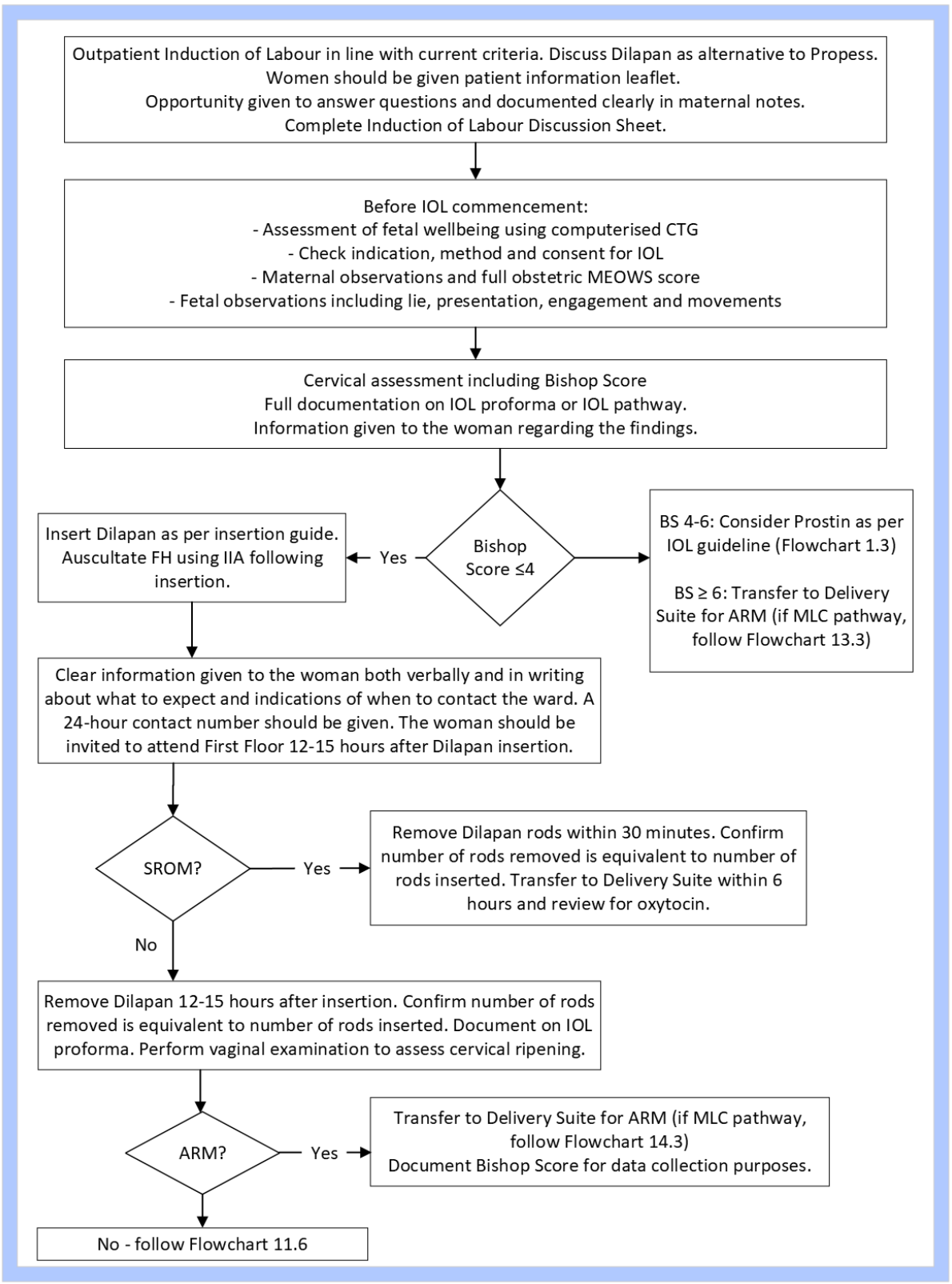
12.3 Eligibility

INCLUSIONS	EXCLUSIONS
IOL indicated	IOL not indicated
Bishop score ≤ 4	Bishop score > 4
	IOL following rupture of membranes
	Women with genital tract infections (excluding Group B Streptococcus infections)

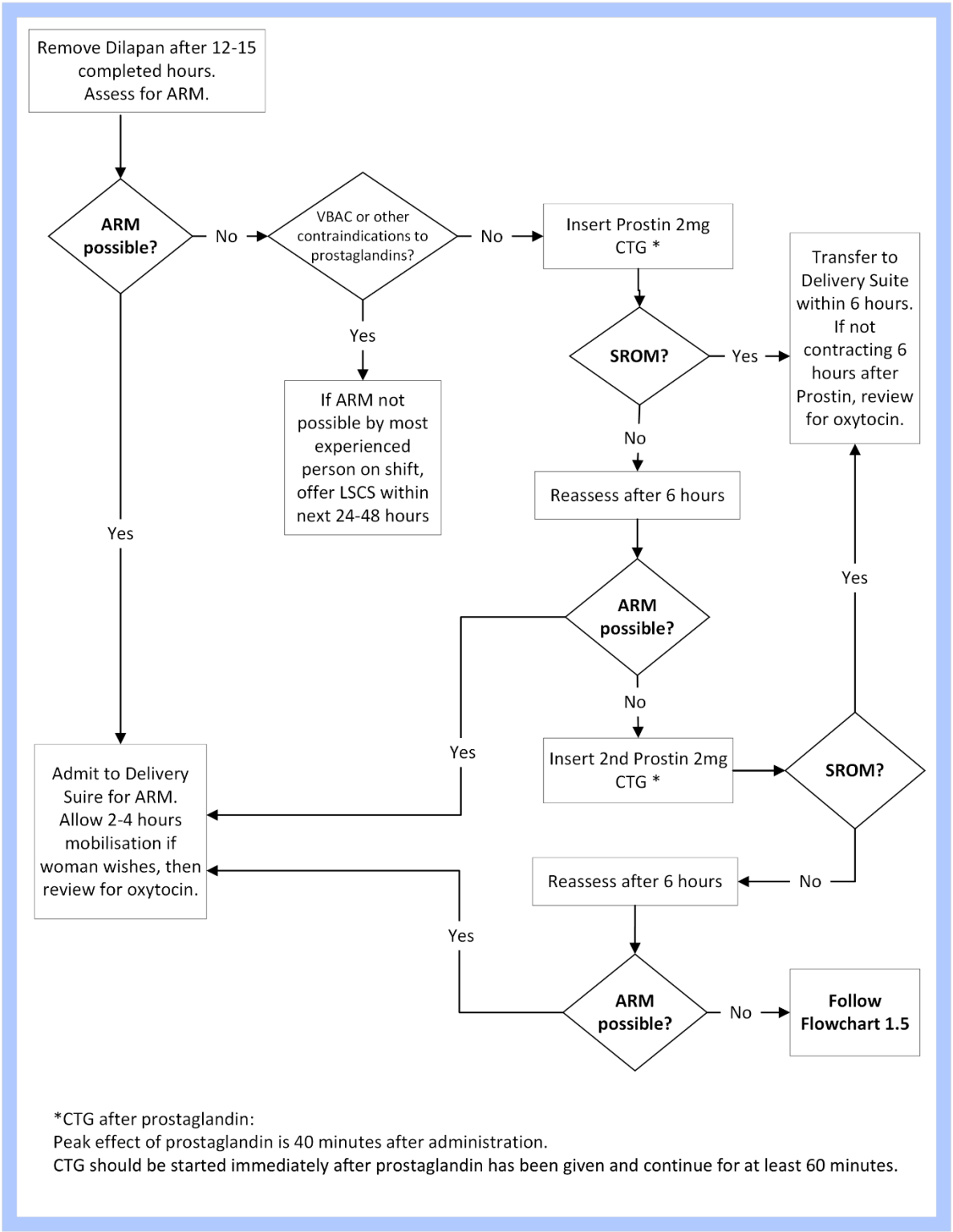
12.4 Flowchart: Standard Operating Procedure for IOL with Dilapan as Inpatient



12.5 Flowchart: Standard Operating Procedure for IOL with Dilapan as Outpatient



12.6 Flowchart: Post Dilapan Assessment



12.7 Insertion and Removal of Dilapan Rods

12.7.1 Insertion of Dilapan-S

1. The required equipment is two sponge forceps, speculum, gel, gloves, good source of light and Dilapan-S.
   The woman can remain on her bed with her legs folded upwards. Lithotomy position is not usually necessary but can be used if required.

   Insertion is usually fully acceptable by women, so there is no need of any local anaesthesia. Rarely, instillagel may be used if required.

2. The cervix is visualized with a sterile vaginal speculum and suitable lighting.
   In some cases, with an unfavourable or posterior cervix, sponge forceps can be used to stabilize the anterior lip of the cervix and to straighten the cervical canal for easier insertion of the rods.

   Dilapan-S rods can be moistened with sterile water, saline or gel to lubricate the surface prior to insertion.

3. Using a sponge forceps, the rod is inserted through the external cervical os gradually and without undue force**.** It is essential that the tip of the rod goes through the internal os. Do not insert the Dilapan-S past the handle.
   A minimum of 4 Dilapan-S rods (and up to 5 rods) are inserted into the cervical canal. The number of pieces inserted varies, since different patients have different pelvic or cervical exam/dilation. The number of pieces inserted should be clearly documented on the Induction of Labour proforma.

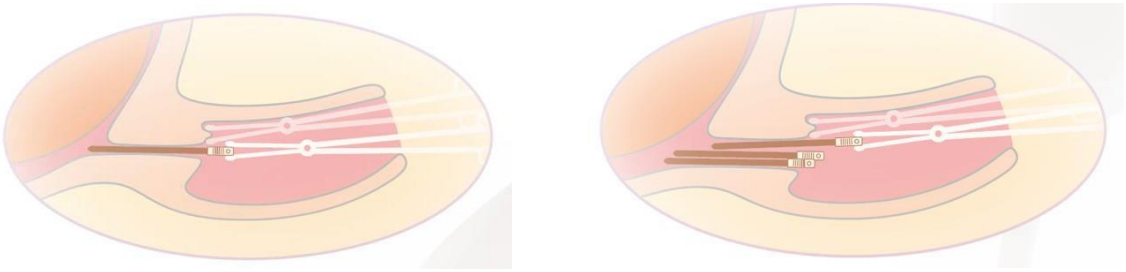
   An adaptable method for women with very unfavourable cervix would be to perform ‘pre cervical ripening’ by inserting 2 dilators and removing these at 4-6 hours. Following this, 4-5 new dilators would be inserted to continue the cervical ripening process. These rods would then be left inserted for 12-15 hours.

   Each rod can act as a guide for subsequent rods to be inserted (see image below).

   NB: Dilapan may also be inserted via a vaginal examination. It is not required to be written up on the prescription chart

   If a small amount of the brown part of the rod is left outside the external os on the first rod, it can sometimes make it easier to insert the subsequent rods. It should be checked that all rods are fully inserted (plastic handle visible outside the external os) before removing the speculum. Be careful not to dislodge the rods when removing the speculum.

   Woman should be informed that some minor bleeding can occur during insertion; this is common and should not be a concern.



4. The fetal heart should be intelligently auscultated following insertion of the Dilapan- S rods.

5. The rods should be left in place up to 12 -15 hours, which is usually sufficient time for increasing the Bishop score adequately.

12.7.2 Removal of Dilapan-S

Reasons for examining or removing the dilators prematurely include:

- Spontaneous onset of labour (defined as regular, firm uterine contractions with an effaced cervix >80% and a cervical dilation >3 cm)
- Concerns on fetal heart rate tracing
- Spontaneous rupture of membranes or need for amniotomy
- Spontaneous expulsion of dilators

6. To remove the rods, pull gently on the threads (speculum not required) and they usually come out as a clump. Please ensure and document all inserted rods are removed. The Bishop score can be determined at the end of removal procedure.
   If the cervix remains unfavourable after the first series of dilators, please see flow chart Flowchart 11.6.

12.7.3 Advice to Women

- To report any excessive bleeding, pain, or increase in temperature.
- To return for removal of the Dilapan-S at the indicated time.
- Under no circumstances should she attempt to remove Dilapan-S herself.
- To report any rupture of membranes.
- To report any spontaneous expulsion of dilators.
- To report any reduction in fetal movements.
- To avoid bathing, douching and sexual intercourse while DILAPAN-S is in place.

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13 Outpatient Induction of Labour

13.1 Background

Induction of labour is a relatively common procedure with approximately 20-25% of births in the UK being induced (RCOG, 2008)**.** There are many obstetric indicators for induction of labour; however, one of the most common indications is post dates pregnancy. In Cardiff and Vale UHB women are offered induction of labour at term + 10 onwards. Women in this situation who have been midwifery led care up to this point and are at low risk of pregnancy and intrapartum complications can be offered induction of labour as an outpatient. Outpatient IOL may also be offered to some consultant led women as per criteria below. There are many benefits for low risk women for outpatient induction; these include:

- Increase in maternal satisfaction
- Reduction in length of antenatal stay in hospital
- Reduced bed occupancy in the maternity unit
- The potential for a reduction in financial costs to the service

13.2 Criteria for Outpatient Induction of Labour

- Uncomplicated pregnancy requiring induction for
  - prolonged pregnancy (Term + 10 days onwards)
  - maternal age with normal serial growth USS
  - low PAPPA with normal serial growth USS
  - raised BMI <40 kg/m2 with normal serial growth USS
  - maternal request including Symphysis Pubic Dysfunction/ Pelvic Girdle Pain/ anxiety/ social reasons from 39 weeks
  - large for dates in absence of diabetes with EFW <4.5kg
  - diet controlled gestational diabetes with normal serial growth USS
  - Rainbow patients with no other risk factors where OPIOL has been agreed by consultant obstetrician
- Uncomplicated previous obstetric history
- No more than two previous births
- Transport available and lives within 30 minutes of UHW.
- Access to a telephone
- No communication issues (language barrier or disability)
- Bishop score ≤4 on vaginal examination including the use of Dilapan
- Normal pre and post induction agent fetal heart rate monitoring.

13.3 Information for Women

Information provided to women and their families should be clear and concise, delivered verbally at the point of decision-making and supported by the *Cardiff and Vale UHB Outpatient Induction of Labour Leaflet.* The discussion should be documented in the records and include:

- The reasons for induction being offered

- The options in relation to when, where and how induction could be carried out
- The risks and benefits of outpatient induction of labour
- The process of induction of labour
- Arrangements for accessing support and monitoring of maternal and fetal well being
- Alternative options should the woman choose not to have induction of labour
- What options are available to the woman if induction of labour is not successful

13.4 Method for Outpatient Induction of Labour

One cycle of vaginal PGE2 controlled release pessary (Propess): One dose over 24hours or 1 cycle of Dilapan in line with *Cardiff and Vale UHB Induction of Labour Guideline.*

13.5 Process for Outpatient Induction of Labour

- Post dates IOL booked by community midwife following discussion and verbal consent. CVUHB Outpatient Induction of Labour leaflet given
- IOL for maternal request or other indications (as stated above) to be booked by doctor, following a Consultant review and discussion. This must ensure woman is low risk. CVUHB Outpatient Induction of Labour leaflet given
- On day of IOL women to be contacted by First Floor North Midwives.
- On attendance dedicated midwife to review notes, confirm gestation, indication and plan with the woman. Woman to sign written consent form confirming her understanding and acceptance for Outpatient Induction of labour
- A full antenatal assessment should be carried out, including fetal heart monitoring with computerised CTG and vaginal examination to assess the cervix
- The notes and medication chart will need to be presented to a Doctor for medication prescribing, they do not need any medical clerking.
- If Bishop score is <4, Propess 10mg or Dilapan should be administered per vagina
- Following the administration of vaginal prostaglandins the CTG should continue for **60 minutes**, discontinuing only if normal.
- Following the administration of Dilapan, the fetal heart can be auscultated with Pinard stethoscope or sonicaid using IIA, providing pre-induction CTG was normal
- Clear information should be given to the woman, verbally and in writing about what to expect following the procedure, and the 24 hour contact telephone number for the obstetric unit will be given
- The woman will have a well-being telephone call at approximately 12 hours following insertion of the Propess for an assessment of maternal and fetal wellbeing, unless contractions commence earlier, in which case the woman should contact the obstetric unit to speak to the midwife who will assess the need for her return

- If the woman establishes in labour within the 24 hours of having the Propess or Dilapan, they will be transferred to the delivery suite or Midwife Led Unit for delivery following risk assessment
- The woman should be given a time to return to the Obstetric Unit 24 hours following the insertion of the Propess pessary, at which point the pessary will be removed and a plan will be made for continuation of the induction of labour as an inpatient.
- The woman should be given a time to return to the Obstetric Unit between 12-15 hours following insertion of Dilapan, at which point Dilapan rods will be removed and a plan made for continuation of induction as inpatient.

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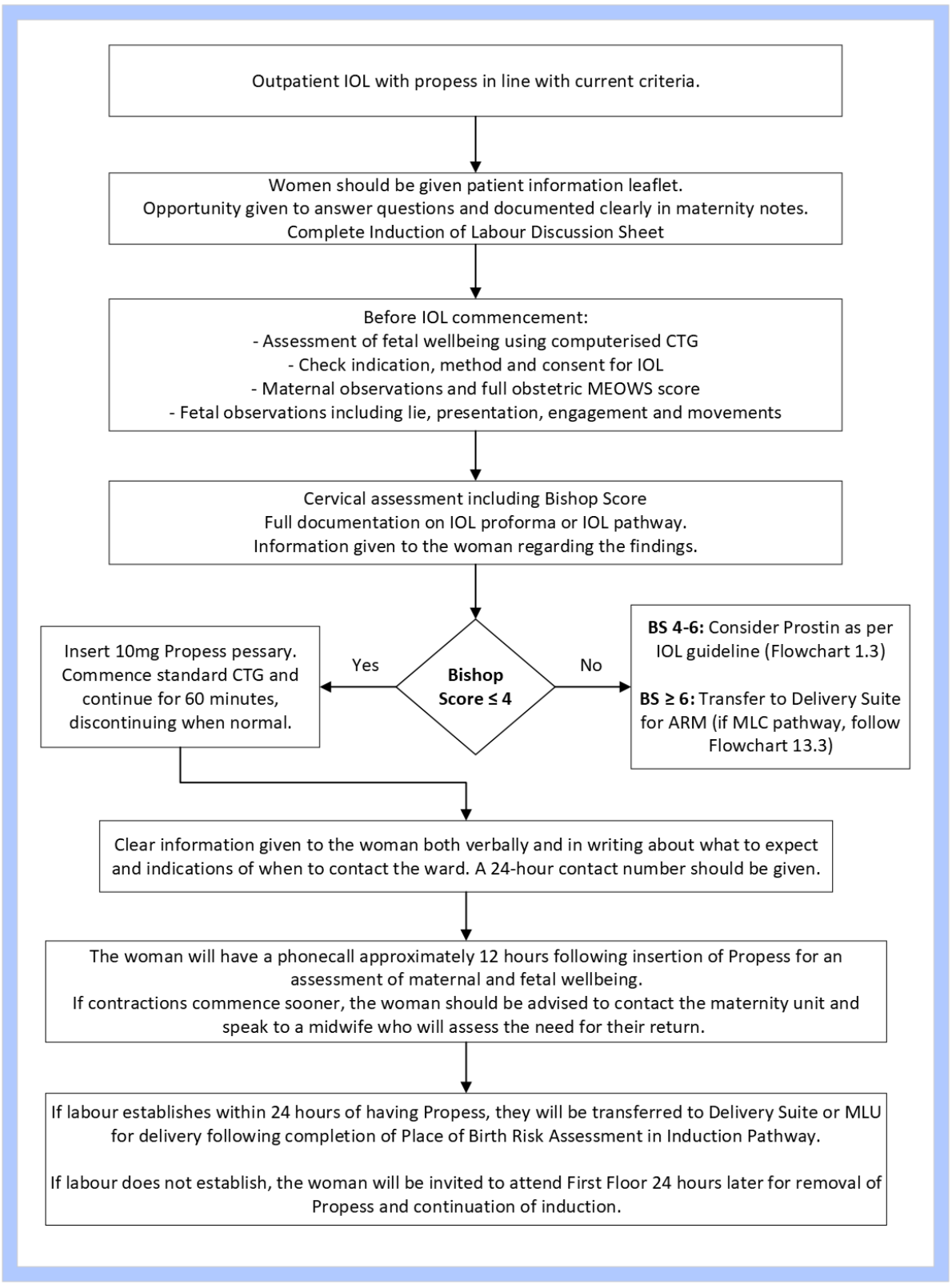
13.6 Flowchart: Outpatient Induction of Labour with Propess



14 MLC Induction of Labour Pathway

Women with an uncomplicated pregnancy and no co-morbidities undergoing an induction of labour before T+14 may be considered for labour and birth on the Midwife Led Unit (MLU).

Place of birth risk assessment in the Induction of Labour pathway booklet should be completed for low risk women on admission for induction. If labour establishes or an ARM can be performed following one cycle of induction agent, the woman may be suitable to continue on the MLU pathway. Women who have spontaneous rupture of membranes following an induction agent may also be considered for the pathway.

Before an ARM is performed, the presence of a normal heart rate pattern must be confirmed with a CTG. An ARM MUST NOT be performed without prior discussion with the delivery suite and MLU co-ordinators to review activity in the maternity unit. ARM can be performed on Induction Ward or MLU.

Following ARM, a standard CTG must be performed for 30mins and discontinued once normal. Women on Induction Ward can then be transferred to MLU and All Wales Clinical Pathway for Normal Labour (AWNLP) should be commenced.

A review including fetal wellbeing assessment should be carried out after 4 hours to ensure the woman remains suitable for MLC care. Document findings on Page 2 of the AWNLP.

Transfer to Delivery Suite for IV syntocinon should be offered if labour has not established within 6 hours of ARM. Transfer may be required sooner if there are maternal or fetal wellbeing concerns. This should be communicated to woman at time of ARM.

14.1 Criteria for MLU Pathway

The following criteria must be met for women to be considered for labour and birth on MLU following an induction of labour:

- Indication for IOL is:
  - Post dates offered from T+10
  - Maternal request from 39+0 (e.g. SPD/ PGP/ maternal anxiety)
  - Large for gestational age where EFW <97th centile in absence of diabetes
  - Low PAPPA with normal serial growth USS (following senior obstetric review)
  - Maternal age 35 – 39 inclusive at booking
  - Raised BMI (35-39.9 with no further pregnancy complexities and has come through Health Pregnancy pathway)
- Uncomplicated pregnancy with no co-morbidities including:
  - Previous SGA with normal serial growth USS this pregnancy

  - Smoker with normal serial growth USS
- Gestation between 37+0 and 41+6 at time of ARM or onset of labour
- Women with <5 previous vaginal deliveries
- Women with intact membranes at start of induction
- Women who have received 1 cycle of induction agents (including women on 'rest day' who HAVE NOT had 3rd prostin)

14.2 Process of MLU Pathway

- Women will undergo either inpatient or outpatient induction of labour (IOL) as per UHB policy.
- Following one cycle of IOL agents, a 20-minute CTG should be performed prior to ARM to confirm fetal wellbeing and assess uterine activity.
- The IOL midwife should contact Delivery Suite and MLU co-ordinators for agreement to proceed with ARM. This will depend on bed capacity and acuity within the maternity unit.
- If the CTG is normal, a cervical assessment should be offered to determine if the woman is suitable for Artificial Rupture of Membranes (ARM).
- If the woman is suitable for ARM and there is agreement from Delivery Suite and MLU, this can be performed on MLU or the Induction ward.
- A CTG should then be continued for 30 mins to confirm fetal wellbeing. If the CTG is normal and there are no signs of meconium or blood – stained liquor, women on North can be transferred to MLU. Place of Birth Risk Assessment should be completed prior to transfer.
- Provision of 1-2-1 care on MLU is not a requirement for the pathway but some women may require this after ARM depending on their clinical picture.
- A review (including fetal wellbeing assessment) should be carried out after 4 hours to ensure the woman remains suitable for midwife-led care. This should be documented on page 2 of All Wales Clinical Pathway for Normal Labour. A VE in the absence of contractions should not be performed.
- If labour has not established but fetal wellbeing has been confirmed, the woman can remain on MLU to mobilise.
- If labour has established following ARM and fetal wellbeing is confirmed, the woman can remain on the MLU to continue All Wales Clinical Pathway for Normal Labour.
- If labour establishes following an IOL agent without the need for ARM, the woman can be transferred to MLU for All Wales Clinical Pathway for Normal Labour.
- If SROM occurs following an IOL agent and established labour commences within 6 hours, the woman can be transferred to MLU for All Wales Clinical Pathway for Normal Labour.
- Transfer can also occur if there is a need for further analgesia (ie. Entonox) or more appropriate supervision for latent phase care.
- Prior to any transfer from First Floor to MLU following induction of labour, a CTG should be performed to confirm fetal wellbeing.
- If labour has not established within 6 hours of ARM, transfer to Delivery Suite should be recommended to commence IV syntocinon. The woman should be

informed that obstetric-led care and continuous monitoring is also recommended.

- Transfer to Delivery Suite should be arranged sooner if there is suspected delay in labour, maternal or fetal wellbeing concerns.

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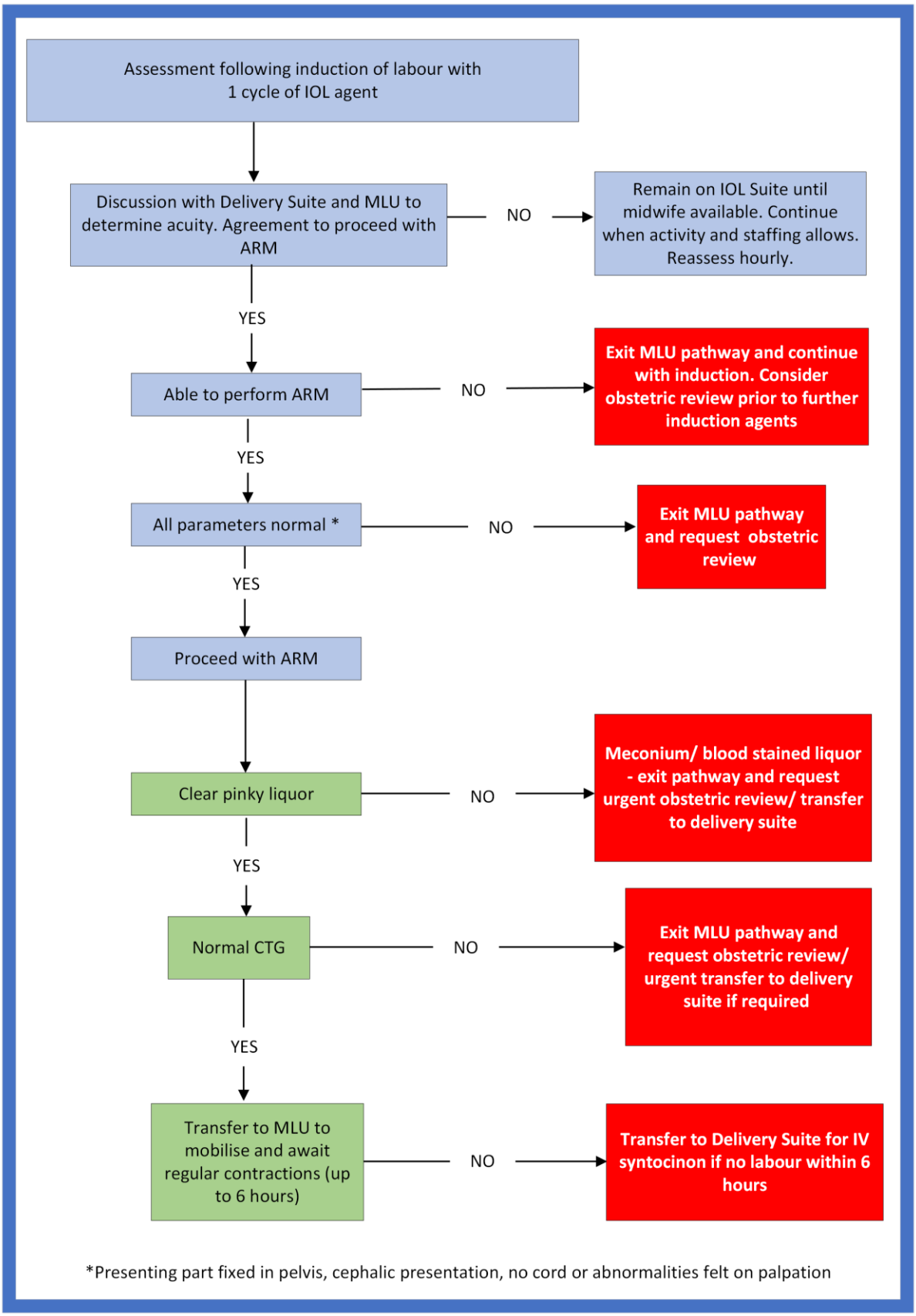
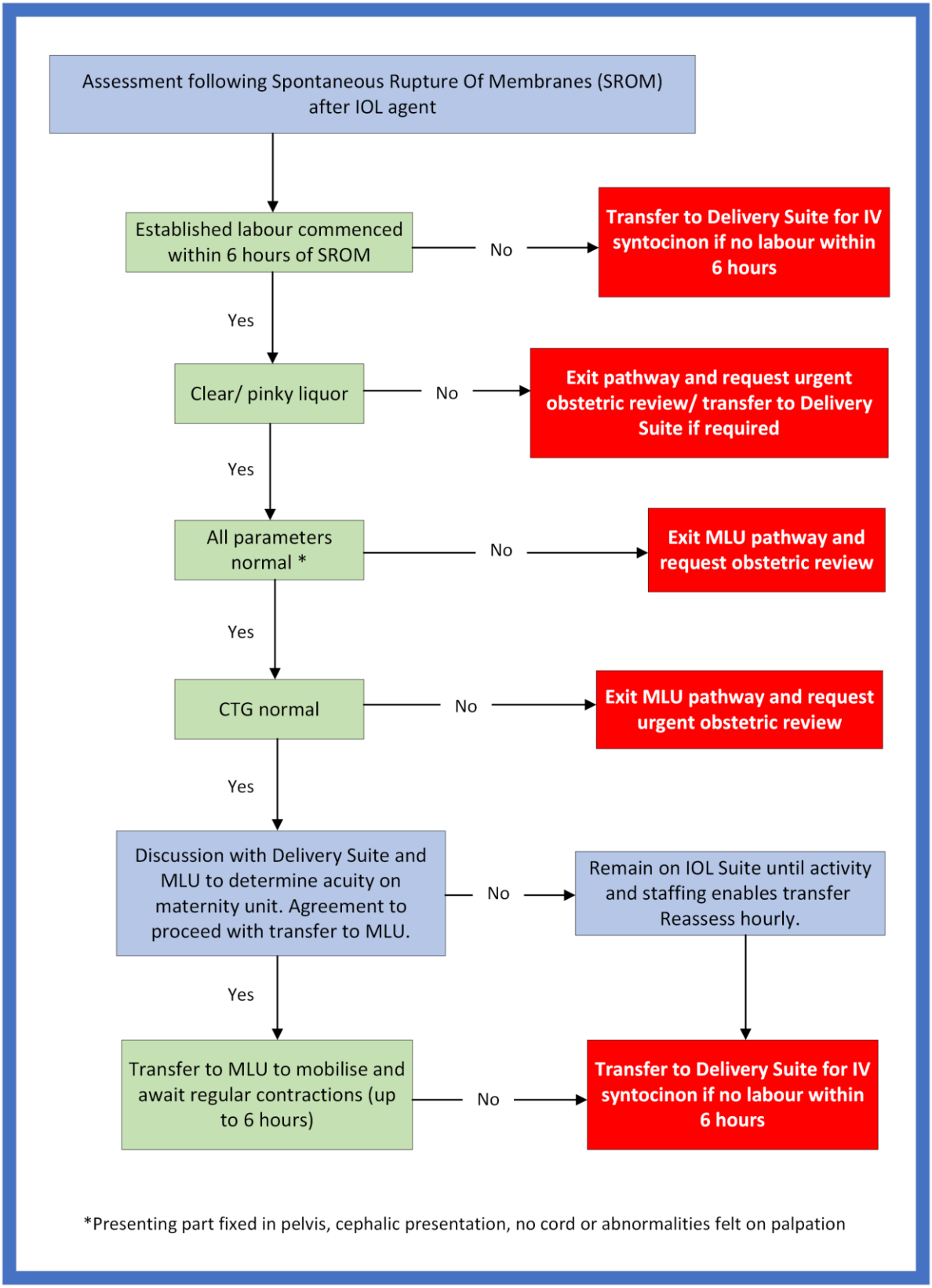
14.3 Flowchart: Standard Operating Procedure for Transfer to MLU following Successful IOL



14.4 Flowchart: Standard Operating Procedure for Transfer to MLU following SROM



15 Amniotomy

Although prostaglandins may induce regular contractions, commonly what is achieved is ripening of the cervix so that an ARM is possible. Once this has been confirmed, the woman should be transferred to delivery suite at the earlier practicable time. An ARM should be performed on delivery suite. Allow two to four hours for mobilisation if the woman wishes, then review for oxytocin.

15.1 Oxytocin Regime

Mix 10 iu of Oxytocin in 500mls of normal saline. Shake and label. 1 unit= 1000 milliunits (MU). Therefore 20 MU in 1ml.

PRIMIGRAVIDA		
Time after starting (minutes)	Dose delivery mls/hr	Dose delivery mu/min
0	6 mls/hour	2 mu/min
30	12 mls/hour	4 mu/min
60	24 mls/hour	8 mu/min
90	36 mls/hour	12 mu/min
120	48 mls/hour	16 mu/min
150	72 mls/hour	24 mu/min

Trials have used up to 32MU per minute although the maximum licensed dose is 20 milliunits per minute.

MULTIGRAVIDA		
Time after starting (minutes)	Dose Delivery mls/hr	Dose delivery mu/min
0	3 mls/hour	1 mu/min
30	6 mls/hour	2 mu/min
60	12 mLs/hour	4 mu/min
90	24 mLs/hour	8 mu/min

Augmentation is uncommon in a multiparous woman and should only be advised after review by an experienced obstetrician.

Women whose labour has been induced/augmented by oxytocin should have continuous electronic fetal monitoring. This recommendation should be discussed with the woman at the time of booking of induction of labour.

Where oxytocin is used, the time between increments of the dose should be no more frequent than every 30 mins. If Fetal Heart Rate (FHR) trace is normal, oxytocin can be continued until the woman is experiencing 4 or 5 contractions per 10 minutes. Oxytocin should be reduced if contractions occur more frequently than 5 contractions in 10 minutes.

If there concerns regarding developing hypoxia , an obstetrician should review this.

Women should be advised to have a vaginal examination 4 hours after the onset of adequate contractions (4 – 5 contractions in 10 minutes).

If there is less than 2 cm progress after 4 hours of oxytocin, further obstetric review is required to consider caesarean section.

If there are concerns regarding fetal hypoxia, oxytocin should be stopped and a full assessment of the fetal condition undertaken by an experienced obstetrician (Reg/SSpR) before oxytocin is recommenced. Restart the Oxytocin only after the CTG is improved and non-hypoxic. Careful clinical judgement is required in this situation and do not hesitate to discuss with the consultant obstetrician.

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16 Review

This policy will be reviewed in 3 years. Earlier review may be required in response to exceptional circumstances, organisational change or relevant changes in legislation or guidance.

16.1 Auditable Standards

1. Induction of labour is booked for indications in line with existing guidance: **100%**
2. Stretch and sweep of membranes is offered 24-48 hours prior to IOL: **95%**
3. IOL after previous caesarean section: suggested method of induction is clearly documented by senior obstetrician in antenatal clinic: **95%**
4. CTG performed after prostaglandin administration at the appropriate time and for the appropriate length of time: **100%**
5. Management of failed IOL after one cycle of prostaglandins is consistent with guidance: **100%**
6. Transfer to delivery suite occurs within 6 hours if SROM following prostaglandins: **95%**
7. Transfer to delivery for ARM occurs within 24 hours of VE: **95%**
8. Outpatient IOL patient selection is in line with current criteria: **100%**

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18 Appendix

18.1 Discussions with women

The following tools should be used by clinicians when counselling women wishing to delay induction of labour in specific circumstances. The checklist should be signed and put in handheld notes as a record of discussion between the healthcare professional and the woman.

18.1.1 Appendix A: Discussion checklist for women wishing to delay IOL after 24 hours of expectant management

	PLEASE TICK
Following SROM, 60% of women will go into spontaneous labour and give birth to a healthy baby. Women will always be supported in choices they make regarding their labour and birth. However, it is important to provide you with the best evidence available regarding the risks and benefits of induction labour and expectant management if your membranes have been ruptured for more than 24 hours.	
The risk of infection to your baby after rupture of membranes for more than 24 hours is approximately twice the risk for rupture of less than 12 hours (1/100 babies). The risk increases the longer it takes from rupture of membranes to onset of labour.	
Due to the risk of infection after rupture of membranes, we recommend having a review to check your observations and check baby's heart tracing at least once every 24 hours until you go into labour.	
Due to the increased risk of infection, the national recommendation is that you labour and deliver in a unit with an on-site specialist neonatal unit, and that baby stays for observation for at least 12 hours after delivery to see for any sign of infection. This would mean labour and delivery in either the obstetric led unit (OLU) or midwifery led unit (MLU). Home birth in this situation is not recommended but you would be supported with this choice should you wish to birth at home.	
We recommend continuous heart rate monitoring of baby in labour following rupture of membranes for longer than 24 hours as this also allows us to check for infection. This requires you to labour and deliver on the obstetric led unit. If you would prefer intermittent auscultation, we will have a low threshold to recommend continuous monitoring especially if baby's heartbeat begins to show signs of developing infection (such as a fast heartbeat).	
Sometimes the baby may open its bowels inside the womb and this is called meconium. The water or 'liquor' may change to green or brown in colour and it is important that you come in to hospital for a review if this happens. Meconium in the liquor increases the risk of infection and baby having breathing difficulties at delivery. Induction of labour with meconium-stained liquor would reduce these risks to baby regardless of how long membranes have been ruptured.	
You may have vaginal bleeding after rupture of the membranes. This is a serious risk factor, as it can be bleeding from the placenta which is providing baby with blood and oxygen. You should come in for review of you and baby at once if you notice any bleeding.	
If you start to feel unwell in any way, you should come in for a review so we can check on you and baby. This may be a sign of infection developing. Infections in pregnancy and labour can be severe, especially if they are not treated quickly. This would probably need treatment with IV antibiotics. There is no evidence that prophylactic antibiotics are of any benefit with rupture of membranes after 37 weeks, so we would not recommend this.	

18.1.2 Appendix B: Discussion checklist for women wishing to delay IOL at or after 42 weeks

Discussion outline for women delaying Induction of Labour at or after 42 weeks

EDD ……/…../…… 42 $^{+0}$ on ……./……/…….

<table>
<tr><th>Recommended care</th><th>Rationale</th><th>Discussed</th></tr>
<tr><td>Recheck the EDD as calculated from LMP and dating scan</td><td>It is important to be as confident as possible about the due date for the baby when discussing induction of labour.</td><td>☐</td></tr>
<tr><td>Induction of labour should be offered between 41^{+0} and 42+0.</td><td>Inform women that labour will usually start naturally before 42 weeks
39+0 – 39+6 (50.3%) 40+0 – 40+6 (82.8%) 41+0 – 41+6 (99%)

Induction before 42 weeks may result in fewer adverse perinatal outcomes, however the absolute risk of severe outcomes is low for women who give birth after 42 weeks of pregnancy (Keulen 2019)

<table>
<tr><th>OUTCOME</th><th>IOL at 41 weeks</th><th>IOL at 42 weeks</th><th>Risk difference</th></tr>
<tr><td>Perinatal death</td><td>4 per 10,000</td><td>35 per 10,000</td><td>About 31 more babies per 10,000 whose mothers gave birth at 42 weeks would be expected to die; so for about 9,969 babies per 10,000 the outcome would be the same irrespective of the timing of induction</td></tr>
<tr><td>NICU admission</td><td>300 per 10,000</td><td>440 per 10,000</td><td>About 140 more babies per 10,000 whose mothers gave birth at 42 weeks would be expected to be admitted to NICU; so for about 9,860 babies per 10,000 the outcome would be the same irrespective of the timing of induction</td></tr>
</table>
No evidence was found for continuous fetal heart rate monitoring after 42 weeks of pregnancy (NICE 2019) the advice is based upon expert opinion and clinical experience. There was clinical consensus that there was an associated risk of stillbirth or neonatal death after 42 weeks of pregnancy. (NICE 2019)</td><td>☐</td></tr>
<tr><td>After 42 weeks birth on the Obstetric Unit is recommended</td><td>☐</td></tr>
<tr><td>After 42 weeks continuous fetal heart rate monitoring in labour is recommended.</td><td>☐</td></tr>
</table>

Appointments Made

Date	Gestation			Where	Planned care

(Based upon NICE Induction of labour guidelines (2021) NICE Intrapartum care for women with existing medical conditions or obstetric complications and their babies (2019) and Health Board guidelines (March 2021)

www.**nice**.org.uk https://www.bmj.com/content/364/bmj.l344

Signed: …….. (Pregnant woman) …… (Midwife) Date:……

18.2 Appendix C: Maternal and fetal observations during induction of labour

	Prior to IOL	**During IOL**
Maternal Assessment	Pulse, temperature, respiratory rate, blood pressure and urinalysis Documented on MEOWS chart with score	12 hourly observations required for low risk women 4 hourly observations required with SROM or hypertension
	Review ultrasound (estimate date of delivery, placental position and presentation)	Assess uterine activity
	Abdominal palpation	Assess for signs of SROM or bleeding
	Assess uterine activity via maternal history, palpation and CTG Consider length, strength and frequency of contractions	Assess for pain
	Assess for signs of SROM or bleeding	
Fetal Assessment	FH assessment using IIA then CTG for 30 minutes or until criteria met *	FH assessment using IIA then CTG for 30 minutes (CTG should be continued for 60 minutes immediately following insertion of prostaglandin)

Maternal and Fetal Observations:

	No uterine activity	**Regular contractions**	**Before pethidine**	**After pethidine**
Maternal assessment	4 hourly review of uterine activity, pain, bleeding and SROM	Hourly review of uterine activity, pain, bleeding and SROM	Pulse, temperature, respiratory rate and blood pressure Documented on MEOWS chart with score	Repeat maternal observations 30 minutes after administration then 2 hourly for 4 hours
Fetal assessment	Mechanical: IIA post insertion then twice daily CTG unless otherwise specified	Perform CTG. If no concerns, commence hourly IIA	Perform CTG for 30 minutes.	Hourly IIA
	Prostaglandin: CTG for 60 minutes post insertion then 6 hourly CTG			

When undertaking a review of the maternal and fetal observations, a full holistic assessment

should be undertaken which should take into account the length, strength and frequency of contractions, the pain levels reported, vaginal loss, the baby's movements and any emerging risk factors since IOL commenced.

A Dawes-Redman machine can be used before the insertion of any induction agent but should not be used in the presence of uterine activity.

18.3 Appendix D: RAG rating tool for booking and cancelling inductions

LEVEL 1 24 hours	LEVEL 2 24-48 hours	LEVEL 3 48-72 hours
• Post dates • Type 1 or 2 insulin-dependent diabetes with fetal/ maternal concerns* • Complicated GDM* • IUGR or SGA <10th centile • PET • Severe PIH • Obstetric cholestasis with BA > 40 • MCDA twin pregnancy with TTTS • Reduced fetal movements after 39/40 • Recurrent episodes of reduced fetal movements (>3) • Spontaneous rupture of membranes	• Type 1 or 2 insulin-dependent diabetes with no fetal/maternal concerns* • Uncomplicated GDM* • Maternal age >40 at booking • Mild-moderate PIH not requiring medication • Obstetric cholestasis with BA between 19 – 39 • DCDA twin pregnancy • MCDA twin pregnancy with no TTS • Reduced fetal movements <39/40 and not recurrent • Unstable lie • APH	• Previous traumatic birth • Mental illness • Maternal request • PGP or SPD • IVF pregnancy • Large for dates • Maternal medical condition • VBAC with no other risk factors • Previous precipitate labour • Low PAPPA • Raised BMI

This may include but is not limited to: fetal growth concerns, diabetes medicated with metformin or insulin, poorly controlled blood sugars

18.4 Appendix E: Algorithm for intramuscular/ subcutaneous/ oral opioids