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| Reference Number: UHBOB070<br><br>Version Number: 8 | Date of Next Review: 05/03/2029<br><br>Previous Trust/LHB Reference Number: N/A |

# Induction of Labour Guideline

**Introduction and Aim**

Induction of labour is the process of artificially stimulating the uterus to start labour. This can be accomplished via mechanical methods (e.g. osmotic cervical dilators, balloon catheters), hormonal methods (e.g. prostaglandins, synthetic oxytocin) or by rupturing the amniotic membranes.

Women should be appropriately counselled about the benefits and risks of induction and must be involved in the decision-making process.

**Executive Summary**

All inductions should be booked via Induction of Labour Booking form on Badgernet.

Induction of labour for specific indications should take place during the suggested gestational ranges unless an alternative consultant plan has been made.

Mechanical methods for induction now include balloon catheters. Hormonal methods include oral misoprostol.

Women who choose to delay induction in specific circumstances should be counselled appropriately using the discussion tools in this guideline.

**Objectives**

To provide guidance for all healthcare professionals caring for woman during the process of induction of labour.

**Scope**

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

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| **Equality Health Impact Assessment** | An Equality Health Impact Assessment (EHIA) has not been completed. |
| **Documents to read alongside this Procedure** | NICE Guideline NG207 Inducing Labour |
| **Approved by** | Maternity Professional Forum<br><br>Quality and Safety Meeting, Maternity |

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| **Accountable Executive or Clinical Board Director** | Jason Roberts, Executive Director of Nursing |
| **Author(s)** | Amy Shacaluga, Consultant Obstetrician<br>Lauren Day, Induction of Labour Lead Midwife |

**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 | | |
| 2 | August 2012 | | |
| 3 | February 2014 | | |
| 4 | January 2016 | | |
| 5 | November 2019 | | Revised document – inclusion of mechanical methods and outpatient pathway |
| 5a | 21/08/2020 | | Revised document – management of SROM following prostaglandins |
| 5b | 10/09/2020 | | Revised document – SOP for Dilapan |
| 5c | March 2021 | | Revised document – SOP for outpatient Dilapan |
| 6 | 16/11/2022 | | Revised document.<br>• Dilapan to be used first line<br>• Updated guidance for fetal surveillance and maternal observations following administration of analgesia<br>• Management of delays and use of RAG system for prioritisation of workload<br>• Expanded outpatient criteria and SOP for MLC pathway |
| 7 | 07/02/2024 | | Revised document – changes to fetal monitoring post induction and location of ARM on MLC pathway |

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|---|---|---|---|
| 8 | 16/04/2026 | | Revised document.<br>• Gestational ranges suggested for each IOL indication.<br>• Inclusion of guidance for use of cervical ripening balloons and oral misoprostol.<br>• Removal of Dilapan guidance. |

# Contents

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, the term also includes people whose gender identity does not correspond with their birth sex or who may have a non – binary identity.

# 1 Overview

Induction of labour is the artificial stimulation of the uterus to start labour. This can be accomplished by mechanical methods, administering prostaglandins, oxytocin or by manually rupturing the amniotic membranes.

Induction of labour before 40 weeks should only be performed when there is clear medical indication and the expected benefits outweigh any potential harm.

Women should be appropriately counselled and must be involved in the decision making process. An induction of labour proforma should be used during this discussion (see Appendix A).

## 1.1 Objectives

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

## 1.2 Definitions / Abbreviations

**IOL:** Induction of labour

**Propess ®:** Trade name for Dinoprostone 10mg used for the initiation of cervical ripening.

**Prostin ®:** Trade name for Dinoprostone 2mg gel used for the initiation of cervical ripening.

**Angusta ®:** Trade name for oral Misoprostol 25 mcg tablets used for cervical ripening.

**CRB:** Cervical ripening balloon

**Dilapan:** Osmotic cervical dilator used for cervical ripening.

**ARM:** Artificial rupture of membranes

**Oxytocin ®:** Trade name for synthetic oxytocin used to stimulate uterine muscles to produce contractions.

**Terbutaline ®:** β2 adrenergic receptor agonist used as a tocolytic to prevent or reduce uterine contractions.

**SROM:** Spontaneous rupture of membranes

**PROM:** Prolonged rupture of membranes

**PPROM:** Preterm prolonged rupture of membranes

**BMI:** Body Mass Index

**CTG:** Cardiotocography used to assess fetal heart rate and uterine activity

**EFM:** Electronic fetal monitoring

**EFW:** Estimated fetal weight

**FHR:** Fetal heart rate

**GDM:** Gestational Diabetes Mellitus

**ICP:** Intrahepatic Cholestasis of Pregnancy

**IOL:** Induction of labour

**IUGR:** Intrauterine growth restriction

**IVF:** In vitro fertilisation

**LGA:** Large for gestational age based on estimated fetal weight by ultrasound scan (>90$^{th}$ centile on customised growth chart)

**OPIOL:** Outpatient induction of labour

**PET:** Pre-eclampsia

**PGE2:** Prostaglandin E2

**PIH:** Pregnancy induced hypertension

**SGA:** Small for gestational age based on estimated fetal weight by ultrasound scan (<10$^{th}$ centile on customised growth chart)

**SPD:** Symphysis Pubis Dysfunction (AKA pelvic girdle pain or PGP)

**USS:** Ultrasound scan

**VBAC:** Vaginal birth after Caesarean section

**VE:** Vaginal examination

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# 2 Roles and responsibilities

## 2.1 Midwife

- To provide majority of care to women undergoing IOL in accordance with local hospital standards
- To provide information to women about the process of IOL including indication for IOL, methods used, risks and benefits
- To identify any deviations from normal for woman or baby and to escalate appropriately
- To ensure all appropriate documentation is completed including delays in care and the reasons for delay.

## 2.2 Delivery Suite Co-Ordinator

- To allocate staff that have the skills and competencies to meet the needs of the individual woman
- To assist midwives in referring women to the obstetric team as required
- To aid the senior obstetric team in prioritisation of women awaiting transfer to Delivery Suite or Midwife Led Unit

## 2.3 Obstetric Medical Staff

- To provide information to women about the process of IOL including indication for IOL, methods used, risks and benefits
- To ensure all appropriate documentation is completed and medication for IOL is prescribed

- To submit IOL booking form via Badgernet and provide women with contact details for Induction Ward.
- To assist Delivery Suite co-ordinator in prioritisation of women awaiting transfer to Delivery Suite

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# 3 Indications & Gestational Ranges for IOL

The following table should be used for reference to determine the most appropriate gestational range at which IOL should occur.

Individualised plans should be made between woman and Consultant to consider timing, place and method of IOL. This should be documented on Intrapartum Management Plan via Badgernet.

GREEN category:

Offer outpatient IOL with Propess / CRB if all other OPIOL criteria met. Offer 12 hourly CTG monitoring unless otherwise indicated. For inpatient monitoring, see section 12.

AMBER category:

Offer inpatient IOL with CRB or Propess. For inpatient monitoring, see section 12.

RED category:

Offer inpatient IOL with mechanical methods first line (unless contraindicated). Individualised plan with Consultant should state preferred method and place of induction.

Where EFW < 3rd centile and / or abnormal Dopplers, IOL should take place on DS if there is requirement to use prostaglandins to facilitate early monitoring at onset of uterine activity.

| Clinical Condition | Suggested Gestation | RAG Rating | Related Guidelines |
|---|---|---|---|
| **BMI**<br>35 – 39.9 | 40 - 41 | G | Management of women with raised Body Mass Index >30kg/m2 in Pregnancy RCOG Green-top Guideline No. 72 |
| **GDM (uncomplicated)**<br>- Diet / metformin controlled<br>- Stable blood glucose<br>- Normal liquor and growth | 40 – 40+6 | G | Diabetes in Pregnancy All Wales – Strategy for Screening and Management of Gestational Diabetes |
| **IVF**<br>Not a reason for IOL alone | Individualised plan | G | |

| | | | |
|---|---|---|---|
| **Low PAPPA**<br>> 0.2 MoM with linear EFW > 25th centile | 40 – 40+6 | G | Only offer OPIOL with mechanical methods. Readmit if any uterine activity.<br>PAPP-A Guideline |
| **Macrosomia**<br>> 90TH centile or EFW > 4 kg | Individualised discussion (see section 4.4) | G | RCOG Green-top Guideline No. 42 – Shoulder Dystocia |
| **Maternal age**<br>≥ 40 years at conception | 39 – 40 | G | NICE Guideline NG207 |
| **Maternal request** | ≥ 40 | G | |
| **Pelvic girdle pain** | ≥ 40 | G | |
| **Perinatal mental health** | Individualised plan | G | |
| **Post dates** | From 41+0<br>By 42+0 | G | |
| **Previous traumatic birth** | Individualised plan | G | |
| **VBAC**<br>(not an indication for IOL alone) | From 41+0<br>By 42+0 | G | Only offer OPIOL with mechanical methods. Readmit if any uterine activity. |
| | | | |
| **BMI**<br>≥ 40 | 40 – 40+6 | A | Management of women with raised Body Mass Index >30kg/m2 in Pregnancy |
| **Cardiac** | Individualised plan | A | |
| **GDM (complicated)**<br>- Poorly controlled blood sugar<br>- Insulin controlled<br>- Fetal macrosomia<br>- IUGR | 37 – 38+6 | A | Diabetes in Pregnancy<br>All Wales – Strategy for Screening and Management of Gestational Diabetes |
| **Mild intrahepatic cholestasis of pregnancy (Singleton)**<br>Peak bile acids 19 – 39 | 39 – 40 | A | RCOG Green-top Guideline No. 43 – Intrahepatic cholestasis of pregnancy |
| **Moderate intrahepatic cholestasis of pregnancy (Singleton)**<br>Peak bile acids 40 – 99 | 38 – 38+6 | A | RCOG Green-top Guideline No. 43 – Intrahepatic cholestasis of pregnancy |
| **PIH**<br>Mild to moderate | 39 - 40 | A | Hypertension disorders in Pregnancy<br>Scheduled birth at term for the prevention of pre-eclampsia (PREVENT-PE): |

| | | | |
|---|---|---|---|
| | | | an open-label randomised controlled trial - The Lancet |
| **PPROM** | 37<br>(Recommend from 34 if GBS positive) | A | NICE Guideline NG207 – Inducing Labour |
| **Pre-existing diabetes**<br>Type 1 or 2 | 37 – 38+6 | A | Diabetes in Pregnancy |
| **Proteinuria**<br>(PCR ≥ 30) | ≥ 40 | A | |
| **Rainbow** | Individualised plan | A | |
| **Reduced fetal movements at term** | ≥39 | A | All Wales – Altered Fetal Movements Guideline |
| **Tailing growth** | Individualised plan | A | RCOG Green-top Guideline No. 31 – SGA Fetus and Growth Restricted Fetus, Investigation and Care |
| **Term pre-labour rupture of membranes (>37 weeks)**<br>No GBS<br><br>GBS Positive | ≥ 37<br><br>Immediate IOL / expectant management<br><br>Immediate IOL | A | Spontaneous Rupture of Membranes at Term<br>NICE Guideline NG207 – Inducing Labour |
| | | | |
| **Abnormal dopplers** | Individualised plan | R | Management of Small for Gestational Age Fetus<br>RCOG Green-top Guideline No. 31<br>Saving babies' lives: version 3 |
| **IUGR**<br>- EFW or AC <3rd centile<br>- EFW or AC <10th centile with abnormal Dopplers | ≥ 37 | R | Management of Small for Gestational Age Fetus<br>RCOG Green-top Guideline No. 31<br>Saving babies' lives: version 3 |
| **Low PAPPA**<br>< 0.2 MoM | 39 | R | PAPP-A Guideline |
| **SGA**<br>EFW >3rd and <10th centile | 39 (birth by 39+6) | R | Management of Small for Gestational Age Fetus<br>RCOG Green-top Guideline No. 31<br>Saving babies' lives: version 3 |
| **Multiple pregnancy**<br>- DCDA | 37 – 37+6 | R | Multiple Pregnancy |

| | | | |
|---|---|---|---|
| (uncomplicated)<br>- MCDA (uncomplicated) | 36 – 36+6 | | NICE Guideline NG137 – Twin and triplet pregnancy<br>RCOG Green-top Guideline No. 51 – Monochorionic Twin Pregnancy, Management |
| **Multiple pregnancy with intrahepatic cholestasis of pregnancy**<br>Peak bile acids > 19 | Individualised plan | R | RCOG Green-top Guideline No. 43 – Intrahepatic cholestasis of pregnancy |
| **Oligohydramnios**<br>DVP < 2cm and AFI < 5cm | Individualised plan | R | |
| **PIH**<br>(Severe) | Individualised plan | R | Hypertension disorders in Pregnancy |
| **Pre-eclampsia** | ≥ 37<br><br>(If < 37 weeks, decision by consultant obstetrician) | R | Hypertension disorders in Pregnancy |
| **Static growth**<br>Over 3 weeks | > 34 | R | Management of Small for Gestational Age Fetus<br>RCOG Green-top Guideline No. 31<br>Saving babies' lives: version 3 |
| **Severe intrahepatic cholestasis of pregnancy (Singleton)**<br>Peak bile acids ≥ 100 | 35 - 36 | R | RCOG Green-top Guideline No. 43 – Intrahepatic cholestasis of pregnancy |
| **Intrauterine fetal demise** | Refer to IUFD pathway | R | Guideline for management of all childbearing losses on CLU and MLU |

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# 4 IOL in specific circumstances

## 4.1 PPROM (<37 weeks)

- Offer expectant management with IOL at 37+0 weeks.
- Offer immediate IOL from 34+0 weeks if positive Group B Streptococcus test at any time in this current pregnancy.
- Consider Angusta if ≥ 37 weeks on admission for IOL **unless VBAC.** If VBAC, plan by senior obstetrician for method of IOL.

## 4.2 SROM / PROM ≥ 37 weeks

- Offer all women choice of expectant management for up to 24 hours or IOL as soon as possible. Discuss benefits and risks of both options. See WISDOM guideline.
- Offer Angusta for women with BS < 7 **unless previous Caesarean**. If VBAC, plan by senior obstetrician for method of IOL.
- Offer forewater ARM / IV oxytocin for women with BS ≥ 7 and arrange transfer to Delivery Suite for continuous monitoring.
- Women declining IOL for PROM should be counselled using proforma in section 22.
- **GBS positive** – offer immediate intrapartum antibiotic prophylaxis and IOL with forewater ARM / oxytocin.
- **Meconium-stained liquor** – senior obstetric review on Delivery Suite with continuous fetal monitoring. Not for IOL on North.

## 4.3 VBAC

- Individualised consultant plan to discuss timing and method of IOL. VBAC alone is not indication for IOL.
- Woman to be fully informed of risks including scar dehiscence and rupture using 'VBAC Risks and Benefits' form on Badgernet
- Use mechanical methods for first line management
- Use Propess by exception with consultant review including counselling on increased risk of scar rupture
- Both **Angusta and Prostin are contraindicated** for anyone with previous Caesarean birth or other uterine surgery

## 4.4 Post dates

Inform women that labour usually starts naturally before 42+0 weeks.

Inform women that some risks associated with continuing pregnancy beyond 41+0 weeks may increase over time including:

- Increased likelihood of Caesarean birth
- Increased likelihood of baby requiring admission to neonatal intensive care unit
- Increased likelihood of stillbirth and neonatal death

Inform women IOL from 41+0 may reduce these risks but they should consider impact of induction on their birth experience.

Women declining IOL from T+14 should be counselled using proforma in section 22.

## 4.5 Suspected fetal macrosomia

- For women where EFW > 90$^{th}$ centile (**LGA**) or EFW > 4000g (**macrosomia**) on customised growth chart in absence of diabetes
- Individualised plan with senior obstetrician (ST6 or above) or IOL lead midwife to discuss options for birth: expectant management, IOL or elective Caesarean

- Discussions should consider parity, Big Baby findings and scan error
- Inform women with EFW < 97th centile (in absence of other pregnancy complications), labour and birth can take place on MLU

### 4.6 Maternal request

IOL for maternal request without medical indication may be supported from 40 weeks gestation if acuity allows.

Women requesting IOL without medical indication should have urgent referral via Birth Choices to facilitate informed discussion with IOL lead midwife.

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## 5 Contraindications to IOL

### 5.1 Absolute contraindications

- **Placenta praevia** – risk of severe haemorrhage
- **Vasa praevia** – risk of fetal haemorrhage
- **Transverse or oblique lie** – malpresentation that requires Caesarean delivery
- **Umbilical cord prolapse** – emergency requiring immediate delivery
- **Genital herpes primary infection in 3rd trimester** – risk of neonatal herpes infection (primary infection in 1st/2nd trimester OR recurrent herpes are not contraindications)
- **Previous classical Caesarean section** – increased risk of scar rupture
- **Severe fetal compromise** – abnormal CTG or evidence of chronic hypoxia

### 5.2 Relative contraindications

In the following situations, IOL should only occur if authorised by a consultant and careful consideration should be made with regards to method of IOL.

- **Severe maternal cardiac disease** – requires careful consideration and monitoring
- **Uterine scar** – increased risk of scar rupture
- **Severe IUGR** – requires careful consideration and monitoring
- **Para 5 or greater**

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## 6 Booking IOL

- All offers of IOL should be discussed with a consultant before final decision is made, unless inducing for otherwise uncomplicated postdates or SROM.
- Offer all women attendance to the virtual CAVUHB IOL workshop (QR codes with booking link in ANC and OAU).

- Direct all women to IOL information leaflet on Badgernet.
- Clinicians should discuss IOL using IOL discussion sheet which can be found in Appendix A. Laminated copies are available in ANC/ OAU.
- Complete 'Induction of Labour Booking' form on Badgernet. For 'Date Induction Booked', please tick 'Unable to allocate'.
- Provide 'Appropriate date range' for the IOL to take place within. There are suggested gestational ranges in section 3 that can be used for reference.
- On booking form under 'Also discussed', please tick 'Other' box and write 'IOL discussion sheet used'.
- Please refer to section 15 of this guideline for suitability for OPIOL.
- All booking forms will be reviewed by Induction team and dates allocated accordingly. Women will be informed of their IOL date by text message.
- For urgent admissions within 72 hours of IOL decision, please also contact Induction Ward directly on ext. 46185.
- Please access Badgernet Process Guide if you require additional information about booking IOL through Badgernet.

## 6.1 Declined offers of IOL

- If IOL is declined where there are concerns for fetal or maternal wellbeing, refer patient to OAU for assessment and review by senior obstetrician. This should include follow-up plan in ANC/ OAU/ scans etc.
- Women declining postdates IOL (from T+14) can be counselled by Consultant Midwife or IOL Lead Midwife using discussion tool in Appendix B.
- Women declining IOL for PROM can be counselled by Consultant Midwife or IOL Lead Midwife using discussion tool in Appendix C.
- If bookings are cancelled, please cancel formally on Badgernet.

## 6.2 Delays in admission for IOL

- Please ensure full documentation of delay in booking form under 'Planned Induction Details'.
- All patients awaiting admission for IOL should be prioritised according to clinical details on booking form.
- Decision to postpone IOL should be MDT discussion with IOL lead midwife, band 7 Delivery Suite midwife and on-call consultant.

- Contact patient to apologise and inform of IOL postponement. Document discussion on 'Communication' form on Badgernet.
- Offer CTG on Induction Ward / OAU per clinical indication and consider membrane sweep if patient wishes.
- Re-arrange IOL for next available date within gestational range on booking form.
- Complete DATIX incident form.

# 7 Membrane sweeping

- Performed during VE. Insert finger through cervix and rotate against wall of uterus to separate chorionic membrane from decidua. Releases prostaglandin hormone which may initiate labour.
- Can be offered from 39 weeks to reduce the need for medical IOL (or earlier if agreed by consultant obstetrician).
- Ensure the procedure is fully explained and obtain consent specifically for membrane sweep
- Inform women of the following
    - May experience some discomfort or period – like cramping
    - May experience small amount of bleeding or mucous discharge called 'show'
    - Labour may start within 48 hours or may not start at all
- Not recommended if:
    - Low-lying placenta
    - Not cephalic presentation
    - Presence of vaginal infection
    - Ruptured membranes
- After membrane sweep, auscultate FH and advise women to monitor for signs of labour (e.g. regular contractions, waters breaking).
- Advise to contact hospital if heavy bleeding, severe pain, signs of labour or any concerns.

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# 8 Methods of IOL

Women should be informed of both mechanical and pharmacological methods of IOL.

Mechanical methods (DILAPAN or cervical ripening balloon) should be recommended if:

- Patient has had previous LSCS
- Baby has EFW <10$^{th}$ centile on customised growth chart
- Baby has abnormal umbilical artery dopplers

Mechanical methods should be considered first line for women in RED category (excluding bereavement pathway).

Pharmacological methods include prostaglandins (Propess, Prostin, misoprostol) and oxytocin infusion.

## 8.1 Propess

10mg of PGE2 in hydrogel polymer pessary with knitted polyester retrieval system. Must be stored in freezer.

Inserted high into posterior vaginal fornix during vaginal examination. Retrieval tape should be placed inside vagina to reduce risk of Propess falling out.

Can be removed with gentle traction on retrieval tape and should be removed:

- After 24 completed hours in situ
- Within 30 minutes of SROM
- At onset of labour
- Prior to oxytocin infusion
- If uterine hyperstimulation **with evidence of fetal distress**. Inform Delivery Suite after removal.

## 8.2 Prostin

2mg of PGE2 in gel form which must be stored in fridge.

Inserted high into posterior vaginal fornix during vaginal examination.

Can be repeated 6 hours after first insertion if ARM not possible.

If unfavourable for ARM after 2$^{nd}$ dose, request review from senior obstetrician.

## 8.3 Angusta

25 micrograms of misoprostol in tablet form. Standard regime is 25 mcg given orally every 2 hours. Max dose 200 mcg in 24 hours (8 tablets).

## 8.4 Cervical ripening balloon

Double balloon catheter which creates pressure on cervix to gradually dilate it and stimulate local release of prostaglandins.

## 8.5 DILAPAN

Synthetic osmotic cervical dilator made from Aquacryl hydrogel. Absorbs moisture from cervix and expands to gradually dilate the cervix. See separate guidance.

## 8.6 Oxytocin

First line for women with BS > 6. Generally administered after amniotomy has been performed and at the following intervals:

- **30 minutes AFTER** removal of Propess
- **6 hours AFTER** administration of Prostin
- **4 hours AFTER** last dose of oral misoprostol

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# 9 IOL with Angusta (oral misoprostol)

## 9.1 Description

Misoprostol is an E1 prostaglandin licensed for treatment of gastro-intestinal pathology but is also used globally for cervical ripening and IOL.

Recent NICE guidance recommends low dose oral misoprostol as a safe and effective option for IOL, based on Cochrane database for systematic review. Oral misoprostol has the same efficacy as vaginal misoprostol and dinoprostone, with fewer Caesarean sections and hyperstimulation episodes resulting in fetal heart rate changes.

## 9.2 Administration

Oral misoprostol should be used first line for IOL in women presenting with SROM or PPROM where BS < 7, except in women with previous uterine surgery (e.g. Caesarean, myomectomy).

Standard regime is oral administration of 25 micrograms tablets every 2 hours for maximum 8 doses (200 mcg in 24 hours). This is one complete cycle.

Further cycles must be discussed with consultant/ senior obstetrician (ST6 or above).

Dose of misoprostol should be omitted if:

- Labour is established
- Woman is experiencing regular contractions
- Significant vaginal bleeding
- Woman is experiencing severe nausea / vomiting

There may be synergistic effect of misoprostol and oxytocin. It is recommended to wait 4 hours after last dose of misoprostol before administration of oxytocin.

Hyperstimulation can be treated with tocolysis but may be more difficult to reverse.

Oral misoprostol is not recommended for outpatient IOL.

## 9.3 Assessment

On admission, full assessment of maternal and fetal wellbeing should be performed as per section 10 of this guideline.

### 9.3.1 Fetal wellbeing

- Perform computerised CTG before administration of first dose. Once normal CTG is established, this does not need repeating before each dose.
- CTG should be repeated minimum 6 hourly as per section 11 of this guideline, unless indicated sooner.
- CTG should also be repeated after maximum dose of 200 micrograms in 24 hours.
- Cervical assessment should be performed after 3$^{rd}$ dose (6 hours) or earlier if contracting 4:10 minutes, lasting 30-40 seconds.
- If BS < 7, next dose of oral misoprostol can be administered.
- If BS ≥ 7, patient should be transferred to Delivery Suite for ARM/ oxytocin.
- Oxytocin should be deferred until 4 hours after last dose of misoprostol and should not be given if woman is experiencing strong contractions.

### 9.3.2 Maternal wellbeing

- Maternal wellbeing should be assessed as per section 11 of this guideline.

## 9.4 Cautions

Use with caution in the following circumstances:

- Before 37 weeks (limited data available)
- Multiple pregnancy (limited data available)
- Cardiovascular disease
- Cerebrovascular disease
- Chorioamnionitis
- Conditions which predispose to diarrhoea (e.g. Inflammatory Bowel Disease)
- Renal failure (GFR < 15 ml/min/1.73 m$^2$)

## 9.5 Contraindications

Oral misoprostol is contraindicated in the following circumstances:

- Established labour
- Suspicion/ evidence of fetal compromise (failed non-stress or stress test, meconium)
- Suspicion/ evidence of hyperstimulation

- Suspicion/ evidence of previous uterine surgery (e.g. Caesarean or myomectomy)
- Uterine abnormality preventing vaginal delivery (e.g. bicornuate uterus)
- Unexplained vaginal bleeding or placenta praevia
- Fetal malpresentation contraindicating vaginal delivery

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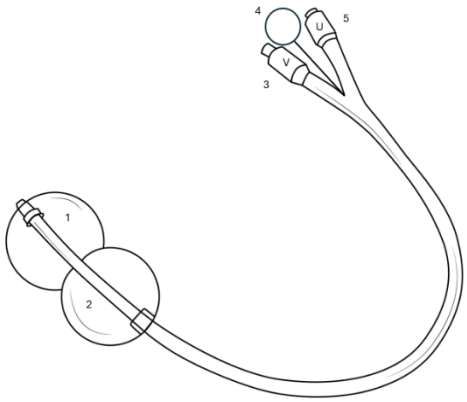
# 10 Induction with Cervical Ripening Balloon

## 10.1 Description

The cervical ripening balloon (CRB) is a silicone double balloon catheter used for mechanical IOL. It encourages cervical dilation by gentle and constant pressure on the cervix over 12 hours. Maximum inflation is 80 mls/ balloon.




1. Uterine balloon
2. Vaginal balloon
3. Green port marked 'V' for inflating vaginal balloon
4. Stylet
5. Red port marked 'U' for inflating uterine balloon

The following equipment is required for insertion:

- Speculum
- Lubricating gel
- Sterile gloves
- Good light source
- Cervical ripening balloon catheter
- 20ml Luer-lock syringe
- 160mls normal saline

The following criteria should be met before use of cervical ripening balloon:

| INCLUSION | EXCLUSION |
|---|---|
| IOL indicated | IOL not indicated |
| Bishop Score < 7 | Bishop Score ≥ 7 |
| Singleton pregnancy | Multiple pregnancy |
| Intact membranes | Ruptured membranes |

## 10.2 Insertion

### 10.2.1 Patient Preparation

1. Confirm singleton pregnancy with vertex presentation and no evidence of placenta praevia and/ or percreta.
2. Place patient in lithotomy position.
3. Insert vaginal speculum to gain cervical access.
4. Clean cervix with sterile water to prepare for device insertion.

### 10.2.2 Catheter placement

1. Use CRB with stylet to traverse cervix.
2. Once uterine balloon is above internal cervical os, remove stylet before further advancing catheter.
3. Advance CRB until both balloons have entered cervical canal.
4. Inflate uterine balloon with 40mls of normal saline using standard 20ml Luer-lock syringe through red Check-Flo valve.
5. Pull back catheter until uterine balloon is against internal cervical os. Vaginal balloon should now be visible outside external cervical os.
6. Inflate vaginal balloon with 40mls of normal saline using standard 20ml Luer-lock syringe through green Check-Flo valve.
7. Once balloons are situated each side of cervix, remove speculum.
8. Add more fluid to each balloon in 20ml increments until each balloon contains 80ml (**maximum**).
9. Proximal end of catheter may be taped to patient's thigh.
10. Fluid can be removed from balloon if patient too uncomfortable but each balloon should contain 40ml (**minimum**).
11. CRB insertion should be documented under 'IOL Procedure' on 'Induction of Labour' form. This includes volume of saline in each balloon.

**NB.** CRB can also be inserted using digital technique via vaginal examination.

### 10.2.3 Advice to women

The following advice should be given to women following insertion of CRB:

- Report any excessive bleeding, pain or reduced fetal movements
- Report any rupture of membranes
- Report spontaneous expulsion of CRB
- May experience some discomfort or period-like cramping
- May experience small amount of bleeding or mucous discharge called 'show'

## 10.3 Removal

1. Recommended by manufacturer for removal at 12 hours. Must be removed by 24 hours as per NICE guidelines.

2. Deflate both balloons through corresponding Check-Flo valves. Uterine balloon should be deflated first.
3. Remove catheter vaginally.
4. If membranes rupture spontaneously following insertion, device should be removed immediately to facilitate active labour management.
5. Bishop Score can be determined following removal. If cervix remains unfavourable, request obstetric review to determine whether further agents can be used.

## 10.4 Contraindications

Cervical ripening balloons are contraindicated in the following:

- Patient undergoing IOL with prostaglandin administration
- Fetal malpresentation (transverse/ oblique lie, breech presentation)
- Polyhydramnios
- Presenting part above pelvic inlet
- Previous hysterotomy, myomectomy, classical uterine incision or any other full-thickness uterine incision
- Pelvic structural abnormality or invasive cervical cancer
- Abnormal fetal heart rate patterns
- Ruptured membranes (due to risk of cord entanglement)
- Any contraindication to labour induction

Women in the following groups will need individualised consultant plan with regards to IOL method due to lack of clinical data to support use of CRB:

- Maternal heart disease
- Multiple pregnancy
- Severe hypertension

## 10.5 Potential adverse events

Risks associated with use of cervical ripening balloon and IOL include:

- Placental abruption / Uterine rupture
- Spontaneous rupture of membranes
- Spontaneous onset of labour
- Device expulsion
- Device entrapment and/ or fragmentation
- Maternal discomfort during and after insertion
- Failed dilation or need for Caesarean birth
- Cervical laceration
- Bleeding
- Risk of pre term birth or labour in subsequent pregnancy

## 10.6 Training

All clinicians who perform CRB insertions must have attended a training session with IOL Lead Midwife or KIMAL representative (UK distributor for CRB).

Community midwives and antenatal educators must also be trained to enable the provision of information to women antenatally.

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# 11 Assessment prior to IOL

All women undergoing IOL should be admitted to First Floor North on day of induction, unless otherwise indicated on IOL booking form. All assessments should be documented on Badgernet.

## 11.1 Maternal and fetal monitoring

A full antenatal examination should be performed including:

- Review of maternal medical history
- Full set of observations (blood pressure, pulse, temperature, respiration rate, 02 saturations) plotted on MEWS chart. Escalate score if needed.
- Relevant bloods taken and urine sample obtained.
- Abdominal palpation and auscultation of FH with Pinard or Sonicaid
- Computerised CTG with Dawes-Redman analysis (in absence of uterine activity)
- Discussion with woman about presence of fetal movements, uterine activity and vaginal loss

## 11.2 Evaluation of cervical status

VE should be performed with consent to assess Bishop Score. If BS < 7, Propess 10mg or mechanical methods should be administered per vagina.

Consider Angusta for women with ruptured membranes where misoprostol is not already contraindicated.

BS should be recalculated following each VE to determine choice of IOL agent or suitability for ARM.

| **SCORE** | **0** | **1** | **2** | **3** |
|---|---|---|---|---|
| **Dilation** | 0 | 1-2 | 3 | >3 |
| **Length** | 3 | 2 | 1 | 0 |
| **Station** | -3 | -2 | -1/0 | +1 |

| | | | | |
|---|---|---|---|---|
| **Consistency** | Firm | Medium | Soft | |
| **Position** | Posterior | Central | Anterior | |

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# 12 Assessment during IOL

A full assessment of maternal and fetal wellbeing should be repeated regularly through the IOL process depending on indication for induction and presence of uterine activity.

A full assessment must also be performed:

- before the administration of any analgesia (this includes co-codamol, water/bath, Entonox or pethidine)
- if woman reports abdominal pain, increased uterine activity, vaginal bleeding, reduced fetal movements or SROM

## 12.1 Fetal monitoring

- Perform CTG to confirm fetal wellbeing and assess uterine activity prior to administration of IOL agent.
- Computerised CTG can be used to assess fetal wellbeing during IOL providing there is NO uterine activity.
- **POST PROSTAGLANDIN:** Minimum 60-minute and discontinue when normal. Peak effect of vaginal prostaglandins occurs 40 minutes after insertion.
- **POST CRB:** Minimum 30-minute CTG and discontinue when normal.
- Perform CTG 6 hourly following administration of prostaglandins or as indicated. Increase to 4 hourly in presence of regular uterine activity.
- Perform CTG 12 hourly following insertion of mechanical methods unless individualised consultant plan or indicated sooner.
- Assess fetal monitoring using antenatal CTG interpretation.
- Consider mobile telemetry machine for women needing to use the toilet within 60 minutes of prostaglandin administration.
- Escalate CTG concerns to Delivery Suite co-ordinator and obstetric staff. Consider USS for sustained periods of loss of contact.
- Consider removing induction agent and / or tocolysis if medical review is delayed.
- Perform hourly IIA should be performed in presence of regular uterine activity where analgesia is required.
- If contraction frequency > 2:10 minutes, consider frequency and method of FHR auscultation and document rationale for chosen method.

## 12.2 Maternal monitoring

- **Vital signs**

  - Assess blood pressure, pulse, temperature, respiratory rate and 02 saturations. Record on MEWS chart
  - Record 12 hourly minimum or as indicated during low risk induction of labour with intact membranes
  - Record 4 hourly minimum or as indicated during high risk induction of labour with SROM or known hypertension
- **Uterine activity**
  - Abdominal palpation for 10-15 minutes to assess frequency, duration and strength of contractions.
  - Monitor for tachysystole / hyperstimulation.
  - Clinicians should not rely on CTG alone
- **Presence of normal FMs**
  - Discuss and document any changes in patterns of FMs
- **Vaginal loss**
  - Monitor for SROM, meconium and any PV bleeding

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# 13 Management of Delays

## 13.1 Delays in ongoing IOL

- Once IOL has started, delays should be avoided where at all possible.
- Ensure full documentation of delay in patient record on Badgernet, including any conversations with Delivery Suite co-ordinator.
- Inform women of any delays in commencing or continuing IOL.
- Continue regular wellbeing assessments as per Appendix D.
- Complete DATIX incident form for delays > 6 hours.

## 13.2 Delays in transfer to Delivery Suite / Midwife Led Unit

- Ensure full documentation of delay in patient record on Badgernet, including any conversations with Delivery Suite co-ordinator.
- Inform women of any delays in transfer to Delivery Suite / Midwife Led Unit.
- Continue regular wellbeing assessments as per Appendix D.
- Refer to Escalation SOP for management of delays in transfer from Induction Ward.
- Complete DATIX incident form for delay > 24 hours for ARM transfer.
- Complete DATIX incident form for delay > 6 hours for oxytocin transfer.

- Complete DATIX incident form for delay > 30 minutes for established labour transfer.

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# 14 Analgesia during IOL

The following methods of analgesia should be regarded as an analgesia 'ladder'. All women should be offered non-pharmacological pain relief methods (e.g. TENS/ bath) prior to administration of the below methods.

Paracetamol

500mgs x 2 can be offered 4-6 hourly (where weight > 50kg). Max dose 4g in 24 hours. **DO NOT** administer within 4 hours of co-codamol.

Co-codamol

8/500mgs x 2 can be offered 4-6 hourly but must be prescribed by a doctor. Max dose 8 tablets in 24 hours. **DO NOT** administer within 4 hours of paracetamol.

There is no requirement for NAS obs with codeine use during IOL with short term use ≤7 days as per UHB guidance.

Pethidine

Should be given infrequently during induced labour following support, advice and information. Prescribe anti-emetic to be administered simultaneously to pethidine.

Must be prescribed by a doctor for use during induced labour.

Consideration should be given to woman's weight. Pethidine dose can be determined according to table below (max dose 200mg in 24 hours).

| WEIGHT | PETHIDINE DOSE |
|---|---|
| Up to 50kg | 50mg |
| 50 – 74 kg | 50 or 75 mg |
| 75 – 100 kg | 75 or 100 mg |
| > 100 kg | Up to 100 mg |

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

MLU guidance (2023) references this guidance regarding administration of pethidine in latent phase of labour. Women birthing on MLU do not need a CTG but will require IIA assessment. The ongoing assessments are the same as described below.

A full holistic assessment should be performed hourly after administration of pethidine, even if a woman is sleeping. This should include IIA, assessment of uterine activity and fetal movements. Continue until uterine activity stops or reduces below contraction rate 2:10.

Midwives should remain astute to progress of labour. VE should be considered prior to administration of pethidine to assess for established labour.

Maternal observations should be performed prior to and 30 minutes post pethidine. This includes heart rate, blood pressure, respiratory rate, sedation and pain scores. Continue 2 hourly for 4 hours.

Seek urgent medical attention for concerns regarding sedation of woman. Administration of naloxone may be necessary to reverse effects of pethidine (see Appendix E).

Entonox

Should not be routinely offered during induced labour due to cumulative sedative effects of long-term use.

May be used to help women who struggle with VE or as part of transfer to Delivery Suite / MLU in established labour.

If a woman requests Entonox for analgesia during IOL, escalate to Delivery Suite co-ordinator and consider transfer to Delivery Suite / MLU for 1-2-1 care. If plan for transfer not made within 30 minutes, consider use of Escalation SOP.

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

No specific maternal observations are required. Regular wellbeing assessments should be performed at least hourly including assessment of uterine activity, fetal movements, sedation and pain scores.

VE should be considered prior to administration of Entonox to assess for established labour.

*Bedside curtains should be left open for women experiencing regular uterine activity and requiring pethidine or Entonox. Please document if this is declined*

Epidural anaesthesia

May be offered during IOL following senior obstetric and anaesthetic review, usually combined with decision to augment labour.

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

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

Requests for epidural anaesthesia during IOL should be escalated to Delivery Suite co-ordinator. Consider transfer to CLU for 1-2-1 care. If transfer is not possible, consider use of Escalation SOP.

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# 15 Complications and Management

## 15.1 Tachysystole / Hypertonus / Hyperstimulation

**Tachysystole** = > 5 contractions in 10 minutes for ≥ 20 minutes.

**Hypertonus** = single contraction lasting ≥ 2 minutes

**Hyperstimulation** = either of above combined with fetal heart rate abnormalities. If hyperstimulation is suspected:

- Perform CTG monitoring to establish fetal wellbeing
- Remove / ask woman to remove Propess
- Monitor for improvement which should occur within 10-15 minutes
- Escalate to Delivery Suite co-ordinator and obstetric staff if no improvement
- Administer tocolytic if necessary (e.g. terbutaline)
- Arrange transfer to DS for continuous monitoring if administering terbutaline or no improvement in CTG

## 15.2 CTG concerns

Perform continuous monitoring with CTG. Escalate to Delivery Suite co-ordinator and request immediate medical review. Consider transfer to Delivery Suite for 1-2-1 care.

## 15.3 Adverse reaction following prostaglandins

Monitor closely for signs of adverse reaction. If adverse reaction suspected, request immediate obstetric review and escalate to Delivery Suite co-ordinator. CTG monitoring should be commenced. Side effects include:

- **UNCOMMON –** infection, headache, hypotension, pruritus, uterine atony, vaginal burning
- **RARE / VERY RARE –** disseminated intravascular coagulation
- **FREQUENCY UNKNOWN –** abdominal pain, diarrhoea, genital oedema, nausea, uterine rupture, vomiting

## 15.4 SROM following vaginal prostaglandins

<u>PROPESS</u>

- Remove Propess within 30 minutes of confirmed SROM.
- Perform CTG for minimum 30 minutes and discontinue when normal.
- No further prostaglandins should be administered.
- Arrange transfer to DS within 6 hours of SROM.
- Oxytocin infusion **should not** be commenced within 30 minutes of Propess

<u>PROSTIN</u>

- Perform CTG for minimum 30 minutes and discontinue when normal.

- No further prostaglandins should be administered.
- Arrange transfer to DS within 6 hours of SROM.
- Oxytocin infusion **should not** be commenced within 6 hours of Prostin administration.

VE should be kept to minimum and only performed in presence of regular contractions where established labour is suspected. VE should be performed prior to commencement of oxytocin infusion. Perform ARM if forewaters are present then commence oxytocin infusion.

## 15.5 Unsuccessful IOL

If cervix remains unsuitable for ARM after first round ripening, full assessment of maternal and fetal wellbeing should be reassessed including CTG. Individualised management plan should be made with input from Consultant Obstetrician. Subsequent options include:

A) Alternative IOL method
B) 24 hour rest day then reassessment. May be able to go home – decision by consultant.
C) Expectant management
D) Oxytocin infusion
E) Elective Caesarean birth (aim to achieve within 24 hours)

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# 16 Outpatient IOL (OPIOL)

Outpatient IOL may be offered to some women following careful risk assessment of their medical history and their indication for IOL. Benefits to outpatient IOL include:

- Increased maternal satisfaction
- Reduction in length of antenatal hospital stay
- Reduction in bed occupancy on induction ward
- Reduction in financial cost to maternity service

## 16.1 Criteria for OPIOL

The following criteria should be met prior to offering outpatient IOL.

- Singleton pregnancy with cephalic presentation
- Intact membranes with normal vaginal loss
- Normal fetal movements
- Uncomplicated previous obstetric history
- < 2 previous vaginal births
- Transport available and access to telephone
- Lives within 30 minutes of UHW if induced with Propess
- Lives within 60 minutes of UHW if induced with mechanical methods
- No communication issues (e.g. language barriers / disabilities)
- Bishop score < 7 on admission with intact membranes
- Normal pre and post induction fetal heart rate monitoring

Women with **GREEN** rating can be offered OPIOL with Propess or mechanical methods.

If **VBAC or low PAPPA**, only offer OPIOL with mechanical methods and advise women to attend unit immediately if any uterine activity.

## 16.2 Information for women

Information provided to women and their families should be clear, concise and should be supported by Cardiff and Vale UHB Outpatient Induction of Labour leaflet which is available on WISDOM. The discussion should include:

- Reason for IOL
- Options for timing, location and method of IOL
- Risks and benefits of OPIOL
- Process of OPIOL
- Arrangements for accessing support and monitoring of maternal or fetal wellbeing
- Alternative options if women choose to not have IOL
- Alternative options if IOL is unsuccessful

## 16.3 Method for OPIOL

One cycle of vaginal PGE2 controlled release pessary (Propess) or 1 cycle of mechanical methods (Dilapan or cervical ripening balloon) as per Cardiff and Vale UHB Induction of Labour Guideline. Chosen method will also depend on indication for IOL.

## 16.4 Process for OPIOL

- IOL booked by community midwife / ANC following discussion and verbal consent. CAV UHB Outpatient Induction of Labour information leaflet given.
- Woman contacted by Induction midwife to organise time to attend hospital.
- On admission, midwife to review notes confirming gestation, indication and plan with woman.
- Full antenatal assessment to be carried out as per CAV UHB Induction of Labour guideline, including computerised CTG and VE to assess cervix.
- If Bishop Score < 7, 10mg Propess pessary or mechanical methods administered per vagina. Method used dependant on indication for IOL.
- **Following administration of Propess**: CTG to continue for minimum 60 minutes. Discontinue when normal.
- **Following insertion of CRB**: CTG to continue for minimum 30 minutes. Discontinue when normal.
- **Following Dilapan**: Auscultate FHR with Pinard or sonicaid using IIA (providing pre-induction CTG is normal)
- CAV UHB Outpatient Induction of Labour information leaflet provided with information about what to expect following procedure, hospital contact numbers and when to call the hospital.

- Wellbeing phone call approximately 12 hours following IOL to assess maternal and fetal wellbeing. Details of call should be documented on Badgernet under 'Communication' form using template in Appendix F.
- Offer woman option of attending unit for fetal monitoring at this point (12 hours post administration) if IOL with Propess.
- If labour establishes following Propess or mechanical methods, women should be transferred to Delivery Suite / Midwife Led Unit following risk assessment.
- Advise women to return to Induction ward: 24 hours following Propess, 15 hours following Dilapan or 12 hours following CRB. This is for removal of IOL agent and continuation of IOL as inpatient.

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# 17 IOL Pathway for birth on Midwife Led Unit

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

If labour establishes or ARM can be performed following IOL, women may be suitable for transfer to MLU for midwife-led labour care. Women with SROM following an IOL agent may also be considered if labour establishes within 6 hours.

Maximum IOL agents that can be administered on this pathway are:

**Propess AND / OR Cervical ripening balloon**

The following criteria must be met for women to birth on MLU following IOL:

- Indication for IOL is listed below
  - Post dates
  - Maternal request
  - LGA where EFW < 97$^{th}$ centile in absence of diabetes
  - Low PAPPA with normal serial growth USS (following senior obstetric review of place of birth at 36/40)
  - BMI < 40 (following consultant midwife review of place of birth at 36/40)
- 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/ onset of labour
- < 5 previous vaginal deliveries
- Intact membranes at start of IOL
- Only received 1 cycle of IOL agents up to but not including 3$^{rd}$ prostin

## 17.1 Process of pathway

- Women will undergo outpatient or inpatient IOL as per UHB policy.

- Perform minimum 20-minute CTG prior to ARM to confirm fetal wellbeing and assess uterine activity.
- Contact Delivery Suite and MLU co-ordinators for agreement to proceed with ARM. This will depend on bed capacity and acuity within maternity unit. Document discussions via 'Communication' form on Badgernet.
- Complete 'Care Plan' form on Badgernet to confirm 'Suitability for Midwifery Led Care in Labour'.
- If CTG normal, offer cervical assessment to determine suitability for ARM.
- If Bishop Score ≥ 7 and there is agreement from Delivery Suite and MLU, ARM can be performed on Induction ward or MLU.
- CTG should continue for minimum 30 minutes post ARM to confirm fetal wellbeing. Discontinue when normal.
- If CTG normal and liquor is clear/ pinky, transfer woman to MLU for continuation of care.
- Review including fetal wellbeing assessment should be performed after 4 hours to ensure woman remains suitable for MLC care. VE in absence of contractions should not be performed.
- If labour establishes within 6 hours of ARM and fetal wellbeing is confirmed, woman can remain on MLU to continue All Wales Clinical Pathway for Normal Labour.
- If labour has not established within 6 hours of ARM, recommend transfer to Delivery Suite for IV oxytocin with obstetric led care and continuous fetal monitoring.
- Transfer to Delivery Suite should occur sooner if there are any maternal or fetal wellbeing concerns.

## 17.2 Other considerations

- **If labour establishes** following administration of IOL agent without need for ARM, women can be transferred to MLU for routine labour care.
- **If SROM occurs** following administration of IOL agent and labour establishes within 6 hours of this, women can be transferred to MLU for routine labour care.
- Women **requesting further analgesia** (ie. Entonox) can be transferred to MLU for latent phase care and more appropriate supervision.
- CTG must be performed to confirm fetal wellbeing prior to any transfer from Induction Ward to MLU.

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# 18 Amniotomy

Although prostaglandins may induce regular contractions, more commonly they cause ripening of the cervix so that ARM is possible.

Women on consultant-led pathway should be transferred to Delivery Suite for ARM to be performed.

CTG should be performed for a minimum of 30 minutes before ARM, during ARM and for minimum of 30 minutes post ARM. Discontinue CTG once fetal wellbeing established.

Consider options of oxytocin commencement immediately following ARM or mobilisation. Offer up to 2 hours mobilisation in primiparous women and 4 hours mobilisation in multiparous women, unless otherwise indicated.

Women on midwife-led pathway should receive care as per section 17 in this guideline.

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# 19 Oxytocin Regime

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

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

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

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

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

Where oxytocin is used, time between increments of the dose should not be more frequent than every 30 minutes. If fetal heart rate trace is normal, oxytocin can be continued until woman is experiencing 4 or 5 contractions per 10 minutes. Oxytocin should be reduced if contractions occur more frequently than 5 contractions per 10 minutes.

Offer VE 4 hours after onset of adequate contractions (4-5 contractions per 10 minutes).

If cervical progress is < 2 cm 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 full assessment of fetal condition should be undertaken by an experienced obstetrician. Only recommence oxytocin after CTG has normalised. Do not hesitate to discuss with consultant obstetrician.

Should only be administered after the following intervals:

- **30 minutes AFTER** removal of Propess
- **6 hours AFTER** administration of Prostin
- **4 hours AFTER** last dose of oral misoprostol

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# 20 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 and guidance.

## 20.1 Auditable standards

1. Induction of labour is booked for indications in line with existing guidance: 100%
2. Membrane sweep is offered prior to IOL: 95%
3. VBAC: suggested method of IOL is documented by senior obstetrician in ANC: 95%
4. CTG performed after prostaglandin administration at appropriate time and for appropriate length of time: 100%
5. Management of failed IOL after one cycle of agents is consistent with guidance: 100%
6. Transfer to Delivery Suite occurs within 6 hours of SROM following IOL agent: 95%
7. Transfer to Delivery Suite for ARM occurs within 24 hours of VE: 95%
8. Outpatient IOL patient selection in line with current criteria: 100%

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# 22 Appendices

## 22.1 Appendix A - IOL Discussion Proforma

**Induction of Labour Discussion**

Please document 'IOL discussion sheet used' on IOL booking form via Badgernet.

| I have discussed the following: | Y / N |
|---|---|
| 1. The reason for offering induction ..... and that you can choose to not have one. | |
| 2. You can request induction without medical reason. This is known as 'maternal request' induction and can be offered from 40 weeks following discussion with a Consultant / Lead Midwife. | |
| 3. Induction for medical reasons may reduce the risk of stillbirth, although background rates are low. | |
| 4. Induction may reduce infection risk have if membranes ('waters') have broken before labour. | |
| 5. Studies show induction does not increase the risk of Caesarean birth or assisted vaginal birth (forceps/ ventouse). | |
| 6. Induction can take several days to work before active labour starts. Your hospital stay may be longer than with spontaneous labour. | |
| 7. There may be delays during induction if the maternity unit is busy. This may include waiting for transfer to have your waters 'broken'. | |
| 8. Induction can be more painful than spontaneous labour. Pain relief will be offered, including the choice of epidural. Epidurals in labour may increase chance of assisted birth (forceps/ ventouse). | |
| 9. Vaginal examinations are needed to assess the cervix before and during induction to determine the best method and to monitor progress. | |
| 10. Choice of place of birth may be limited due to recommended interventions such as oxytocin infusion and continuous fetal monitoring. | |
| 11. There may be limitations on the use of a birthing pool. | |
| 12. Some induction methods can cause hyperstimulation where the uterus contracts too frequently or for too long, causing stress to your baby. We can offer an injection to reverse this. | |
| 13. Sometimes induction may not work. If this happens, the following options will be discussed:<br>• Await labour in hospital without further intervention<br>• Another round of IOL after 24 hours<br>• Caesarean birth | |
| 14. **PREVIOUS CS –** Scar dehiscence (separation of previous uterine scar) occurs in 0.5% of vaginal births after Caesarean. This risk increases 2-3 times if labour induced which increases your risk of needing urgent Caesarean during induction. | |

I have explained different methods of induction as follows: Y / N

| | |
|---|---|
| **Membrane sweep** – vaginal examination to stimulate natural prostaglandin hormones. May be uncomfortable, may experience mucousy show. | |
| **Cervical ripening balloon** – soft, thin tube with 2 small balloons inflated with water which apply pressure on cervix causing dilation. Recommended for women with small baby or previous Caesarean birth. | |
| **Prostaglandin pessary or gel** – contains synthetic prostaglandin hormones to soften and open cervix. May cause vaginal soreness and contractions. | |
| **Prostaglandin tablets** – contains synthetic prostaglandin hormones to soften and open cervix. Recommended for women with ruptured membranes. May cause contractions. | |
| **Artificial rupture of membranes** – a midwife or doctor may offer to 'break your waters' once the cervix has dilated enough | |
| **Oxytocin drip** – synthetic hormone given through vein in your hand if labour doesn't start after waters have been broken. Continuous monitoring performed to monitor regularity of contractions and baby's heartbeat. | |

I have given the opportunity to ask questions and for you to consider all options. ☐

I have signposted you to our patient information leaflet. ☐

I have signposted you to our virtual information session. ☐

I have explained current health board restrictions for ward visiting. ☐

## 22.2 Appendix B – Post dates Discussion Proforma

Discussion checklist 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 rowspan="3">Inform women that labour will usually start naturally before 42 weeks<br>39+0 – 39+6 (50.3%) 40+0 – 40+6 (82.8%) 41+0 – 41+6 (99%)<br><br>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)<br><br><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><br>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 Inducing Labour (2021), NICE Intrapartum care for women with existing medical conditions or obstetric complications and their babies (2019) and Health Board guidelines (March 2021)

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

## 22.3 Appendix C – Delaying Term PROM Discussion Proforma

Discussion checklist for women wishing to delay IOL after 24 hours expectant management.

**(TICK)**

| | |
|---|---|
| We want to provide the best evidence-based information about risks and benefits of induction and delaying induction if your membranes have been ruptured for more than 24 hours. We will support your choices for labour and birth. | |
| 60% of women will labour spontaneously following spontaneous rupture of membranes (SROM) and give birth to a healthy baby. | |
| Risk of infection to baby increases from 1/200 at 12 hours following ruptured membranes to 1/100 after 24 hours. The risk increases the longer it takes from SROM to onset of labour. | |
| We recommend review to check your observations and baby's heart rate tracing at least once every 24 hours until labour starts, due to risk of infection. | |
| National guidelines recommend you birth in hospital with on-site specialist neonatal unit and baby stays for minimum 12 hours after delivery to monitor for signs of infection. Home birth is not recommended but you would be supported with this choice. | |
| We recommend continuous monitoring of baby on Delivery Suite in labour to check for signs of infection. If you choose to have intermittent auscultation, there is low threshold to recommend continuous monitoring if there are signs of developing infection. | |
| Sometimes, water or 'liquor' will become green or brown in colour. This is called meconium and means baby has opened their bowls inside the womb. This increases risk of infection and breathing difficulties for baby at delivery. Induction reduces this risk. | |
| You may have vaginal bleeding after ruptured membranes. This may be bleeding from the placenta so we recommend attending the hospital immediately for review if this happens. | |
| Feeling unwell can be a sign of developing infection. Infections can become severe if not treated quickly with antibiotics. We recommend attending hospital immediately if you feel unwell. There is no evidence for prophylactic antibiotics following ruptured membranes after 37 weeks. | |

## 22.4 Appendix D - Assessment during IOL

| | Prior to IOL | During IOL |
|---|---|---|
| **Maternal Assessment** | HR, T, RR, BP, and urinalysis<br>Document on MEOWS with score | **Low risk:** 12 hourly MEOWS<br>**High risk (SROM, hypertension):** 4 hourly MEOWS |
| | Review ultrasound (EDD, placental position and presentation) | Assess uterine activity |
| | Abdominal palpation | Assess for signs of SROM or bleeding |
| | Uterine activity. Consider:<br>• maternal history<br>• palpation<br>• CTG<br>• length, strength, and frequency | 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<br><br>(CTG should be continued for 60 minutes immediately following insertion of prostaglandin) |

Maternal and fetal observations in presence of uterine activity requiring analgesia:

| | 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 | HR, T, RR, BP Documented on MEOWS with score | 30 minutes post administration<br><br>2 hourly for 4 hours |
| **Fetal assessment** | **Mechanica**l: CTG for 30 minutes post insertion then 12 hourly unless indicated | Perform CTG.<br><br>If no concerns, commence hourly IIA | Perform CTG for 30 minutes. | Hourly IIA |
| | **Prostaglandin**: CTG for 60 minutes post insertion then 6 hourly unless indicated | | | |

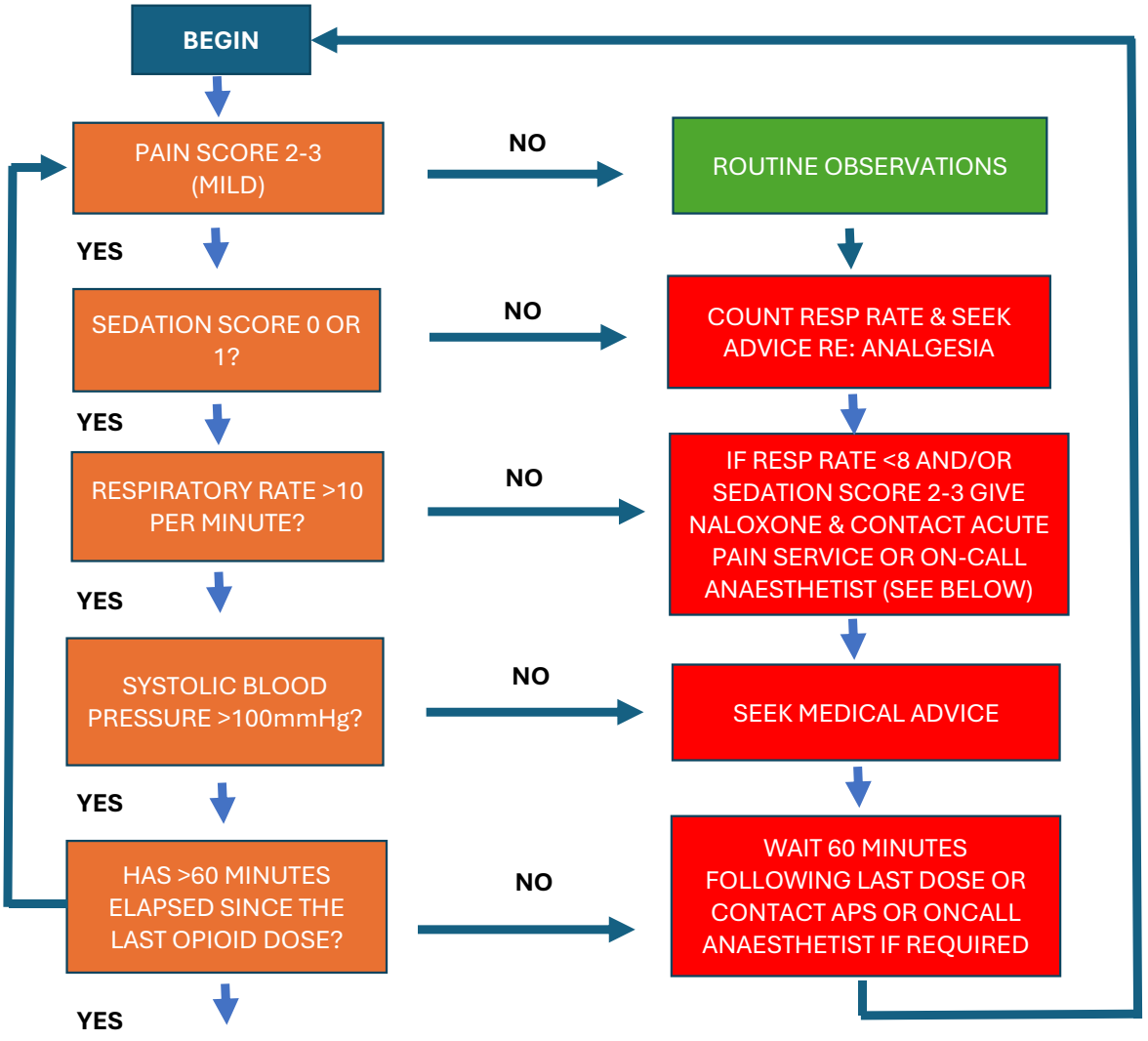
## 22.5 Appendix E – Algorithm for administration of opioids

1st LINE: ORAL MORPHINE DOSE AS PRECRIBED
- STARTING DOSE 5-10MG

2nd LINE: IM/SC MORPHINE

| Weight | Dose |
|---|---|
| 40-65kg | 7.5mg |
| 66-100kg | 10mg |

MONITORING REQUIRED WHEN USING STRONG OPIOIDS; HR, BP, RR, SEDATION & PAIN SCORES.
THESE SHOULD BE RECORDED BEFORE EVERY OPIOID DOSE AND CONTINUED 2 HOURLY WHILST ALGORITHM IS IN USE.
ENSURE ALL PATIENTS RECEIVING STRONG OPIOIDS HAVE IV ACCESS.




GIVE FURTHER IM/SC/ORAL DOSE OF OPIOID PRESCRIBED.
ENSURE REGULAR PARACETAMOL & IBUPROFEN HAVE BEEN PRESCRIBED AND GIVEN (IF NOT CONTRAINDICATED) OR DICLOFENAC SUPPOSITORY IF RECTAL ROUTE MORE APPROPRIATE.
Contraindications to NSAID'S:
Known allergy, renal impairment, hypotension, history of peptic ulcer, aspirin sensitivity, marked dehydration

**RESPIRATORY RATE <8/MIN +/- SEDATION SCORE >2:**
**USING A 5ML SYRINGE, DILUTE 400MCG (1ML) OF NALOXONE WITH 3ML NORAML SALINE = 50MCG/ML (4ML TOTAL VOL).**

**GIVE 0.5ML (50MCG) INCREMENTS UNTIL RESPIRATORY RATE IS >12/MIN AND SEDATION SCORE IS 0-1.**

**GIVE OXYGEN 15L VIA NON-REBREATHER MASK. CALL 2222 IF ANY FURTHER DETERIORATION ON BREATHING OCCURS**

## 22.6 Appendix F – Template for welfare check following OPIOL

The following table should be used as a template of questions to ask during a telephone welfare check following OPIOL.

All telephone calls should be documented via the 'Communication form' on Badgernet. If there are any concerns regarding maternal or fetal wellbeing, arrange immediate admission to Induction Ward (or Delivery Suite if acuity is too high).

| | |
|---|---|
| **CONTRACTIONS** | Date and time of onset |
| | Rate of contractions |
| | Strength (mild/ moderate/ strong) |
| | Length of contractions |
| | Analgesia required? |
| **PAIN** | Uterine hyperstimulation<br>(Abdominal? Constant? Intermittent?) |
| **VAGINAL LOSS** | SROM: Date, Time, Colour |
| | Blood loss |
| | Show |
| **FETAL MOVEMENTS** | Presence of fetal movements<br>Is pattern normal? |
| **GENERAL WELLBEING** | Normal OR Absence of disease<br>(Infection, fever) |