Induction of Labour Guideline

Guideline information

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Obstetric Written Documentation Review Group

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Summary of document:
This guideline is for use employees of Hywel Dda University Health board working in and alongside the Women Children's Health Directorate caring for all women and birthing people and birthing people who require induction of labour.

Scope:
This guideline is applicable to all women and birthing people where induction of labour is indicated when it is agreed that there is a higher probability of a healthier outcome for mother and birthing person and or fetus to induce birth than if the pregnancy were to continue. Induction of labour should only be considered when vaginal birth is felt to be the most appropriate route.

The guidance uses the term "woman" (pronouns she or her) or Mother to describe individuals whose sex assigned at birth was female, whether they identify as female, male or non-binary. It is important to acknowledge it is not only people who identify as women for whom it is necessary to access women's health and reproductive services. Therefore, this should include people who do not identify themselves as women but who are pregnant or have recently given birth. Obstetric and midwifery services and delivery of care must therefore be appropriate, inclusive and sensitive to the needs of those individuals whose gender identify does not align with the sex that they were assigned at birth.

To be read in conjunction with: (All open within new tabs)
623 - Large for Gestational Age in Non-Diabetic Guideline
621 - Hypertension in Pregnancy Guideline
669 - Management of the Small for Gestational Age Fetus Guideline
632 - Diabetes in Pregnancy Guideline
645 - Management of PPROM (Premature Prelabour Rupture of the Membranes) Guideline (sharepoint.com)

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1.0 – New Guideline
2.0 – Updated
3.0 – Full Review
4.0 - Review

Keywords
Induction of Labour, Postdates, Low Risk Pregnancy

Glossary of terms
IOL – Induction of Labour
VBAC - Vaginal Birth after Caesarean Section

SGA - Small for Gestational Age
IUGR - Intrauterine Growth Restriction
PPROM - Preterm Prelabour Rupture of Membranes
PROM - Prelabour Rupture of Membranes
ARM - Artificial Rupture of the Membranes

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Scope

This guideline is applicable to all women and birthing people where induction of labour is indicated when it is agreed that there is a higher probability of a healthier outcome for mother and birthing person and or fetus to induce birth than if the pregnancy were to continue. Induction of labour should only be considered when vaginal birth is felt to be the most appropriate route.

The guidance uses the term “woman” (pronouns she or her) or Mother to describe individuals whose sex assigned at birth was female, whether they identify as female, male or non-binary. It is important to acknowledge it is not only people who identify as women for whom it is necessary to access women’s health and reproductive services. Therefore, this should include people who do not identify themselves as women but who are pregnant or have recently given birth. Obstetric and midwifery services and delivery of care must therefore be appropriate, inclusive and sensitive to the needs of those individuals whose gender identify does not align with the sex that they were assigned at birth.

Aim

The aim of this document is to:
Define principles of induction of labour (IOL) for post maturity in low risk patients.
IOL in special circumstances must be discussed with patient’s Consultant (Consultant on-call) or are discussed in specific guideline (IOL in the presence of uterine scar).

Objectives

The aim of this document will be achieved by the following objectives:

- Clearly defining IOL
- Detailing the methods of IOL
- Assessment of patients
- Process of induction

Introduction

Induction of Labour (IOL) is defined as an intervention designed to artificially initiate uterine contractions leading to progressive effacement and dilatation of the cervix, and birth of the baby. This may include women and birthing people with membranes still intact or with ruptured membranes who are not in labour.

Induction of labour is indicated when it is agreed that there is a higher probability of a healthier outcome for mother and birthing person and / or fetus to induce birth than if the pregnancy were to continue. Induction of labour should only be considered when vaginal birth is felt to be the most appropriate route.

Informing Decision Making

Before the induction process begins, women and birthing people should be informed about the clinical indication of the induction and the associated risks and benefits. Women and birthing people should also be informed of the arrangements for support and pain relief. Written information to support their decision making should be provided. Alternative options should a women and birthing people chose not to have an induction should be explained.

Women and birthing people should also be informed:

- Their hospital stay may be longer than with a spontaneous labour.
- Vaginal examinations to assess the cervix are needed before and during induction.
- Their choice of place of birth will be limited, as they may be recommended interventions (for example, oxytocin infusion, continuous fetal heart rate monitoring and epidurals) that are not available for home birth or in midwife-led birth units.
- There may be limitations on the use of a birthing pool.
- There may be a need for an assisted vaginal birth, with the associated increased risk of obstetric anal sphincter injury.
- Pharmacological methods of induction can cause hyperstimulation.
- An induced labour may be more painful than a spontaneous labour.
- Induction may not be successful, and how this would affect the woman and birthing person's options.

Explain to Women and Birthing People that there is a Small Increase in Risks of an Adverse Outcome associated with a Pregnancy continuing beyond 41+0 and these include:

- Increased likelihood of caesarean birth
- Increased likelihood of the baby needing admission to a neonatal intensive care unit
- Increased likelihood of stillbirth and neonatal death.

Therefore, in HDUHB induction of labour to be offered from 41/40

Decision to perform routine IOL after 41/40 for low risk women and birthing people (uncomplicated pregnancy, no concerning obstetric history) can be done by midwife or obstetrician and clear indication stated in notes and IOL file. In case of any complications in obstetric history this must be discussed with senior obstetrician.

IOL for any other reason must be discussed and agreed by named Consultant.

Women and Birthing People over 40 Years of Age

Because there is some evidence that women and birthing people over 40 years of age have a slightly increased risk of intrauterine death, IOL can be considered after 39/40.

Women and birthing people over 40 years of age should have individualised plan for IOL made by their Consultant and documented in notes.

If a woman and birthing person over the age of 40 goes into spontaneous labour with no additional risk factors in pregnancy they can be treated as low risk in labour regardless of the birth setting. Note: Refer to All Wales Midwife Led Care Guideline.

Suspected Fetal Macrosomia (Large for Gestational Age)

In the absence of any other indications or problems (eg diabetes), suspected fetal macrosomia may be a consideration for induction of labour (Refer to 623 - Large for Gestational Age in Non-Diabetic Guideline for further information).

History of Precipitate Labour
IOL to avoid a birth unattended by healthcare professionals should not be routinely offered to women and birthing people with a history of precipitate labour.

Maternal Request
Consider requests for induction of labour only after discussing the benefits and risks with the woman and birthing person, taking into account the woman and birthing person's circumstances and preferences.

Vaginal Birth after Caesarean Section (VBAC)
IOL after caesarean section carries the potential additional risk of uterine scar dehiscence/rupture. This must be agreed by the consultant obstetrician. See VBAC guideline.

Pre-Eclampsia /Hypertensive Disease in Pregnancy
Refer to 621 - Hypertension in Pregnancy Guideline

Small for Gestational Age (SGA) / Intrauterine Growth Restriction (IUGR)
Refer to 669 - Management of the Small for Gestational Age Fetus Guideline

Preterm Prelabour Rupture of Membranes (PPROM) / Prelabour Rupture of Membranes (PROM)
Refer to 645 - Management of PPROM (Premature Prelabour Rupture of the Membranes) Guideline (sharepoint.com)

Diabetes
Refer to 632 - Diabetes in Pregnancy Guideline

Women and Birthing People who Decline Induction of Labour

Women and birthing people who decline IOL should be referred to a Consultant Obstetrician for individualised care planning.

A clear management plan should be documented in the woman and birthing person’s hand-held and maternity notes.

Women and Birthing people who Decline Induction of Labour for Postmaturity (>41/40)
From >42/40 women and birthing people should be offered increased antenatal monitoring consisting of computerised CTG (Dawes Redman) and ultrasound estimation of maximum amniotic pool depth twice weekly. Women and birthing people must be aware that CTG and USS surveillance has a poor predictive value.

Any abnormalities found on the CTG or liquor volume should be discussed with the woman and birthing person and the consultant on-call and recommendation for IOL should be discussed again.

Methods of IOL

The methods of induction are varied and success depends on appropriate assessment and treatment.

Membrane Sweeping

Explain to women and birthing people:

- What a membrane sweep is.
- That membrane sweeping might make it more likely that labour will start without the need for additional pharmacological or mechanical methods of induction.
- That pain, discomfort and vaginal bleeding are possible from the procedure.

At antenatal visits after 39+0 weeks, discuss with women and birthing people if they would like a vaginal examination for membrane sweeping, and if so obtain verbal consent from them before carrying out the membrane sweep.

Discuss with women and birthing people whether they would like to have additional membrane sweeping if labour does not start spontaneously following the first sweep (Refer to standard operating procedures for membrane sweeping in pregnancy).

Women and birthing people should be offered membrane sweeps in the week leading to induction of labour, this should not be performed prior to 37/40 – timing and frequency of sweeps should be discussed between the woman and birthing person and her midwife.

Cervical Ripening by Prostaglandins

Prostaglandins should be used to ripen the cervix prior to artificial rupture of the membranes if the woman and birthing person's Bishop score is 6 or less.

Prostin E2® Vaginal Gel (Dinoprostone)

Dinoprostone in the form of vaginal gel 1mg or 2mg should be considered as the preferred form in women and birthing people with a favourable Bishop score of between 4 and 6.

Standard regime considers administration of 1-2mg followed by a second dose of 1-2mg in 6-12 hours interval up to 4mg total dose in nulliparous women and birthing people and 3mg total dose in multiparous women and birthing people. (One complete Cycle).

Further Dinoprostone medication must be discussed with the Consultant/Senior Obstetrician.

Propess® (Dinoprostone)

Propess® is a pessary containing 10mg of Dinoprostone for release over 24 hours. Propess® should be considered as the first choice option for women and birthing people with a Bishop's score <4

Administration: One pessary is inserted high into the posterior fornix. (One Cycle).

Propess® should be Removed

- After 24 hours.

- When labour is established.
- The membranes have ruptured and there are regular contractions >4 in 10minutes.
- If no regular contractions, Cervix less than 3cm dilated and CTG normal – **Propess® can stay in situ** until transfer to Labour room and Oxytocin drip arranged.
- Significant vaginal bleeding.
- There is evidence of uterine tachysystole, hypertonus or hyperstimulation.
- Tachysystole = ≥ 5 contractions in 10 minutes with normal CTG.
- Hypertonus = painful contraction lasting ≥ 90 seconds: normal CTG.
- Hyperstimulation = Tachysystole or hypertonus with abnormal CTG.
- CTG suggests fetal hypoxia.
- There is evidence of maternal systemic adverse effect such as severe nausea and vomiting.

Oral Misoprostol (Angusta®)

Oral Misoprostol should be the first line for IOL in women presenting with PROM or PPROM. It can also be used in other indications, including maternal choice.

Oral Misoprostol is not licensed to be used in women with previous uterine surgery (Caesarean or Myomectomy)

Standard regime considers administration of 25micrograms tablets every two hours for a maximum of 8 doses (maximum 200 micrograms per day). (One complete Cycle).

Further Cycle must be discussed with the Consultant/Senior Obstetrician.

The dose should be omitted if:
- Labour is established.
- The woman is experiencing regular contractions.
- There is significant vaginal bleeding.
- The woman experiences severe nausea and vomiting.

A CTG is not required for each dose however a computerised CTG should be performed before commencing IOL and consideration should be given to repeating the CTG following the onset regular contractions or if any concerns arise.

There may be a synergistic/additive effect of misoprostol and oxytocin. Plasma concentrations of misoprostol acid are negligible after 5 half-lives (3.75 hours). It is recommended to wait 4 hours after the last dose of misoprostol before administration of oxytocin

Hyperstimulation can be treated with tocolysis, however hyperstimulation caused by misoprostol may be more difficult to reverse.

Cautions

Use with caution in
- Cardiovascular disease

- Before 37 weeks – limited information available
- Chorioamnionitis ,
- Cerebrovascular disease
- Conditions which predispose to diarrhoea as Inflammatory Bowel Disease
- Renal failure GFR less than 15 ml/min/1.73 m2

Artificial Rupture of the Membranes (ARM)

ARM should be considered as the first method of induction if the Bishops score is 7 or more.

Oxytocin is usually required for induction if ARM is done without any contractions and should be started after ARM. However, in some cases, it might be reasonable to allow some time for labour to establish without Oxytocin (i.e. latent phase, grandmultip..etc)

If women are suitable for ARM and oxytocin alone, the oxytocin should be prescribed on the medication chart.

Prior to ARM, abdominal and vaginal examination should be performed to confirm presentation and engagement.

ARM should be discussed with the woman and verbal consent obtained and this should be recorded in the notes.

When performing ARM a sterile technique and an Amnihook should be used to rupture the membranes

Note in patients labour notes the cervical findings, indication, amount and colour of liquor and presence of meconium.

The Use of Oxytocin for Induction of Labour

- Oxytocin infusion can be commenced **6 hours AFTER** administration of Prostin® Vaginal Gel (Dinoprostone).

- Oxytocin infusion can be commenced **30 mins AFTER** removal of Propess® (Dinoprostone).

- Oxytocin infusion can be commenced **4 hours AFTER the last dose of misoprostol.**

Oxytocin for induction of labour is an indication for continuous monitoring.

Oxytocin dose should be staggered until regular contractions 3-4:10 are established. Oxytocin can be stopped once Labour has established and only restarted if there's a delay in progress in labour (see Oxytocin for delay in labour guidelines)

Oxytocin should be prescribed as below:

DATE & START TIME	INFUSION FLUID		ROUTE	MEDICINE ADDED		INFUSION RATE OR DURATION	PRESCRIBER'S SIGNATURE	PHARM
	TYPE/STRENGTH	VOLUME		APPROVED NAME	DOSE			
1/1/24	Sodium Chloride 0.9%	500mL	IV	Oxytocin	10 units	As per protocol	*A Doctor* Beep No. 007	

- Commence infusion following artificial rupture of the membranes (ARM), or after spontaneous rupture of the membranes (SROM) and confirmation of a normal CTG.
- Continuous CTG monitoring must be commenced using the Intrapartum CTG Classification sticker
- The partogram must be commenced in the Labour and Delivery Record
- Oxytocin may only be added by those members of staff certified as competent to mix intravenous solutions or a member of staff undergoing training and watched by a certified member of staff.
- The infusion should be administered via a B/Braun infusion pump with a non-return valve.

The following regime must be used:

Mix 10units of Oxytocin in 500mL of sodium chloride 0.9%, hence 3ml/hr = 1 milliunit oxytocin per minute.

Label bag with signed "medication added" label. Document fluid volume and drug on the Fluid Balance Record. Invert bag several times to ensure mixing of the oxytocin in the diluent fluid.

All entries should be made in milliunits/minute (mu/min)

PRIMIGRAVIDA and MULTIGRAVIDA		
Time after starting (minutes)	Dose delivery ml/hr	Dose delivery mu/min
0	3ml/hour	1mu/min
30	6 ml/hour	2 mu/min
60	12 ml/hour	4 mu/min
90	24 ml/hour	8 mu/min
120	36 ml/hour	12 mu/min
150	48 ml/hour	16 mu/min
180	60 ml/hour	20 mu/min
210	72 ml/hour	24mu/min
240	84ml/hour	28mu/min
270	96ml/hour	32mu/min

Trials have used up to 32milliunit/min although the maximum licensed dose is 20 milliunits per minute. A written plan must be made in the maternity records by a senior obstetrician if more than 20millunit/min is to be given.

Aim of the Regime

- The regime is applicable to primigravida and multigravida women.
- The minimum dose possible of Oxytocin should be used and this should be titrated against uterine contractions aiming for a maximum of *3-4 contractions* in a 10-minute period.
- Rates above 60 ml/hr require Registrar, Staff Grade or Consultant approval.
- **In exceptional circumstances the use of *higher or varied* doses is a consultant decision only**.
- If woman transferred to theatre for caesarean section discontinue oxytocin infusion and cap the venflon.

Monitoring

- The dose of Oxytocin being administered should be recorded on the partogram reflecting increases/decreases in the dose.
- All adjustments to the dose should be recorded on the CTG tracing.
- Maternal pulse should be recorded hourly and blood pressure four hourly unless otherwise requested or obstetric conditions indicate more frequent recordings. All recordings should be written on to the partogram.
- The foetus should be continuously monitored according to the CTG guidelines for first and second stages of labour
- Palpate contractions for frequency, strength, duration and resting tone every half hour and record on the partogram.
- **Do not rely on CTG to assess strength of contractions**.

- **If monitoring contractions is not possible:**
    - Change maternal position
    - Consider using the extra-large straps for women with increased BMI
    - Palpate contraction and place toco on abdomen where contraction palpated at strongest Escalate to senior midwife

In order for the CTG to be assessed accurately the recording of the contractions is a vital element. Every effort should be made to record on the CTG the presence of contractions.

If the toco is not picking them up the midwife may use another method to ensure this is done, e.g., press the toco lightly during contraction, or mark the CTG.

Any difficulties in monitoring the contractions should be evidenced within the maternal records including actions taken.

Cervical Ripening Balloon

Balloon can be recommended as the first line for IOL in specific circumstances i.e vaginal birth after caesarean, IUGR, grand multiparity, sensitivity to prostaglandin

Insertion of a double balloon catheter for induction of labour at term in pregnant women and birthing people aims to facilitate induction through causing dilation of the cervix when the cervix is unfavourable for induction. The double balloon is claimed to stimulate local prostaglandin release, which leads to cervical ripening, through the two balloons squeezing the cervix.
Please see link for full guidance: http://www.nice.org.uk/guidance/ipg528 (opens in new tab).

Assessment

The components of the Bishops Score must be recorded in full (as below) using the sticker available on the Ward.

Modified Bishops Score (Max 10)	**0**	**1**	**2**
Dilatation (cm) Length of cervix (cm) Station (relative to ischial spines) Consistency Position	<1 >4 -3 Firm Posterior	1 – 2 2 – 4 -2 Average Mid/Anterior	3 – 4 1 – 2 -1/0 Soft Anterior

Process of Induction of Labour

- Prostaglandins should be prescribed on the drug chart placed in patient´s notes in preparation for ward admission (2 doses of Prostin E2® vaginal gel 1-2 mg or Propess® 10mg, see further in the flowchart)

- The rationale for induction of labour must be clearly discussed with women and birthing people and should include an appropriate individualised discussion around the risks and benefits. Women and birthing people should be counselled on the potential time for the induction process and women and birthing people should be advised to contact the maternity unit on the morning that their induction is booked, they should be informed that whether the induction will be able to go ahead will depend on the unit acuity

- IOL book to be completed in full
- Name and address
- Telephone number
- Consultant
- Gravida/para
- Indication for IOL
- Team

- Women and birthing people should be advised to ring for bed availability prior to admission. Admission time varies per local protocol. After admission to the ward, CTG with Dawes Redman criteria and baseline observations are commenced (BP, pulse, temperature, urinalysis, palpation).

- Assess CTG for 30 minutes with the view to proceed with IOL, perform vaginal examination and assess Bishop Score. Proceed with induction as per flow chart.

- After 30 minutes encourage mobilisation and await events.

- Intermittently auscultate the fetal heart according to clinical judgement.

- Dawes Redman criteria should not be used once the induction has commenced

Fetal Monitoring

Once regular contractions are reported fetal heart rate should be monitored with CTG for 30 minutes to assess fetal well-being.

Once in established labour, fetal heart to be monitored according to NICE intrapartum care guidelines

For women and birthing people who do not have any additional risk factor as referenced in the NICE intrapartum care guideline [2017] then intermittent auscultation can be used to assess the fetal wellbeing once labour is established without the use of oxytocin

Advise continuous cardiotocography if any of the following risk factors are present at initial assessment or arise during labour:

- Maternal pulse over 120 beats/minute on 2 occasions 30 minutes apart
- Temperature of 38°C or above on a single reading, or 37.5°C or above on 2 consecutive occasions 1 hour apart
- Suspected chorioamnionitis or sepsis
- Pain reported by the woman and birthing person that differs from the pain normally associated with contractions
- The presence of meconium
- Fresh vaginal bleeding that develops in labour
- Severe hypertension: a single reading of either systolic blood pressure of 160 mmHg or more or diastolic blood pressure of 110 mmHg or more, measured between contractions
- Hypertension: either systolic blood pressure of 140 mmHg or more or diastolic blood pressure of 90 mmHg or more on 2 consecutive readings taken 30 minutes apart, measured between contractions
- A reading of 2+ of protein on urinalysis and a single reading of either raised systolic
- blood pressure (140 mmHg or more) or raised diastolic blood pressure (90 mmHg or more)
- Confirmed delay in the first or second stage of labour (see recommendations
- Contractions that last longer than 60 seconds (hypertonus), or more than 5 contractions in 10 minutes (tachysystole)
- Oxytocin use

Management of Uterine Hyperstimulation

- Tachysystole = ≥ 5 contractions in 10 minutes with normal CTG
- Hypertonus = painful contraction lasting ≥ 90 seconds: normal CTG

- Hyperstimulation = Tachysystole or hypertonus with abnormal CTG

1. Keep on CTG
2. Place patient in left lateral position
3. Remove Propess® – DO NOT perform ARM
4. Inform on-call registrar and transfer to labour ward
    - IV Access (Take bloods for FBC / Group & Save)
    - IV 0.9% sodium chloride – start at a rate of 500ml/hr
5. **If CTG is normal**:
    - Wait for 15-30 mins then reassess.
    - If tachysystole or hypertonus persisting, administer 250 micrograms SC **TERBUTALINE** (ie 0.5ml of 0.5mg/ml solution of Bricanyl®).
6. **If CTG is NOT normal (suspicious or pathological)**:
    - Administer 250 micrograms SC **TERBUTALINE** immediately, and involve the on call anaesthetist.

Unsuccessful IOL

Unsuccessful IOL is when labour is not established / or ARM is not possible after one cycle of IOL If the IOL is unsuccessful, the woman and birthing person should have a full assessment by a senior obstetrician. This should include the indication for IOL, the method used, the maternal and fetal wellbeing, and the woman and birthing person's wishes.

The following options should be offered to the woman and birthing person:

Further Cycle of IOL

The timing and method of any further cycle should be determined on individual bases

Category 3 Caesarean Birth

The timing of the Caesarean should take into consideration the maternal and fetal wellbeing as well as the work load on the unit/neonatal unit.

Auditable Standards

- Number of women and birthing people having membrane sweeps prior to IOL
- Computerised CTG performed prior to commencement of induction
- Delays during the IOL procedure
- IOL Pathway Compliance

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Appendix 1 IOL Sticker

<table>
<tr><td colspan="5">Induction of Labour Decision</td></tr>
<tr><td colspan="5">Name: Hospital number</td></tr>
<tr><td colspan="2" rowspan="3">Indication</td><td>Gestation now</td><td colspan="2">EDD</td></tr>
<tr><td colspan="3">Gestation at induction</td></tr>
<tr><td colspan="3">Date of induction</td></tr>
<tr><td>Risk Factors</td><td colspan="2"></td><td colspan="2">SCBU informed?

Y N N/A</td></tr>
<tr><td colspan="5">Potential Risks explained: More painful /hyperstimulation/may not be successful/Take longer/risks of Instrumental delivery, CS/others</td></tr>
<tr><td colspan="2">Discussion completed and documented (including procedure)</td><td></td><td>Consent obtained</td><td></td></tr>
<tr><td colspan="2">Information leaflet given</td><td></td><td>Prescription completed</td><td></td></tr>
<tr><td colspan="2">Consultant informed</td><td></td><td>Induction booked</td><td></td></tr>
<tr><td colspan="2">Woman informed that alternative options available</td><td></td><td>If IOL unsuccessful options discussed</td><td></td></tr>
<tr><td colspan="2">Pain relief options discussed</td><td></td><td>Plan for membrane sweeping clearly discussed and documented</td><td></td></tr>
</table>

Appendix 2 Bishop's Score Sticker

Modified Bishops Score (Max 10)	**0**	**1**	**2**
Dilatation (cm) Length of cervix (cm)	<1 >4	3 – 2 4 – 4	3 – 4 1 – 2
Station (relative to ischial spines)	-3	-2	-1/0
Consistency	Firm	Average	Soft
Position	Posterior	Mid/Anterior	Anterior

Appendix 3 - Induction of Labour Information Leaflet

Induction of Labour Information Leaflet – opens in new tab

Taflen Gwybodaeth Ysgogi Esgor – opens in new tab