Induction of Labour Guideline

Document Type:	Clinical Guidelines
Ref:	(For Non-Clinical References – Contact: CTM_Corporate_Governance@wales.nhs.uk For Clinical References – Contact: CTM_ClinicalPolicies@wales.nhs.uk
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Approved By:	Clinical Policy Group (Clinical Procedures, Guidelines Only)
Approval / Effective Date:	April 28th 2025
Review Date:	April 2028
Version:	2

Target Audience:

People who need to know about this document in detail	All Medical, midwifery staff, locum and bank staff working within maternity services CTM UHB
People who need to have a broad understanding of this document	As above
People who need to know that this document exists	As above

Integrated Impact Assessment:

Equality Impact Assessment Date & Outcome	Date: October 2024 Outcome: No negative impact
Welsh Language Standard	Choose an item.
Date of approval by Equality Team:	(00/00/0000)
Aligns to the following Wellbeing of Future Generation Act Objective	Choose an item.

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Objectives / Strategy	
Dolen i Nod (au) Strategol BIP CTM / Link to CTMUHB Strategic Goal(s)	Improving Care
Dolen i Feysydd Strategol BIP CTM / Link to CTMUHB Strategic Areas	Starting Well
	If more than one applies please list below:
Dolen i Ddeddf Llesiant Cenedlaethau'r Dyfodol – Nodau Llesiant / Link to Wellbeing of Future Generations Act – Wellbeing Goals *150623-guide-to-the-fg-act-en.pdf (futuregenerations.wales)*	A Healthier Wales
	If more than one applies please list below: A Resilient Wales
Dolen i Hwyluswyr Ansawdd *(Canllawiau Statudol Dyletswydd Ansawdd (llyw.cymru)) /* **Link to Enablers of Quality** *(Duty of Quality Statutory Guidance (gov.wales))*	Culture and Valuing People
	If more than one applies please list below:
Dolen i Feysydd Ansawdd *(Canllawiau Statudol Dyletswydd Ansawdd (llyw.cymru)) /* **Link to Domains of Quality** *(Duty of Quality Statutory Guidance (gov.wales))*	Person Centred
	If more than one applies please list below: Safe, Timely, Efficient, Effective, Equitable
Effaith Amgylcheddol/ Cynaliadwyedd (5R) / Environmental /Sustainability Impact (5Rs)	No - Not Applicable
	If more than one applies please list below:

Impact Assessment		
Ansawdd *Ydych chi wedi ymgymryd â Sgrinio Asesiad o'r Effaith ar Ansawdd? /* **Quality**	Yes: ☒	No: ☐
		If no, please include rationale below:

Have you undertaken a Quality Impact Assessment Screening?		
Cydraddoldeb a'r Gymraeg *Ydych chi wedi ymgymryd â Sgrinio Asesiad o'r Effaith ar Gydraddoldeb a'r Gymraeg? /* **Equality and Welsh Language** *Have you undertaken an Equality and Welsh Language Impact Assessment Screening?*	Yes: ☒	No: ☐
	Outcome for Equality (delete as appropriate): POSITIVE Outcome for Welsh Language (delete as appropriate): NEUTRAL	If no, please include rationale below:
Cyfreithiol / Legal	There are no specific legal implications related to the activity outlined in this report.	
Enw da / Reputational	There is no direct impact on the reputation of the Health Board as a result of the activity outlined in this report.	
Effaith Adnoddau *(Pobl /Ariannol) /* **Resource Impact** *(People / Financial)*	There is no direct impact on resources as a result of the activity outlined in this report.	

Contents

1. Definition

Induction of labour (IOL) is the process of artificially stimulating the uterus to start contracting, which can be accomplished by administering oxytocin or prostaglandins to the pregnant woman or by manually rupturing the amniotic membranes. Induction of labour should only be performed when there is a clear indication (as described in section 3) and the expected benefits outweigh its potential harms. Women should be appropriately counselled and must be supported to make a decision that is right for them.

2. Rationale

Induction of labour is indicated when it is agreed that there is a higher probability of a healthier outcome for mother 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.

3. Indications/ special circumstances for induction of labour

I. Post-maturity (> 41+0 weeks gestation)

Women with uncomplicated pregnancies should be offered IOL from 41 completed weeks' gestation onwards.

Women who choose to decline IOL at 41 weeks should be counselled appropriately regarding the risks and benefits and should be offered twice weekly cardiotocograph (CTG) and ultrasound (USS) liquor volume assessment. An appointment for USS needs to be made as close as possible, but no later than 42+0. Women should be informed that CTG's and USS are used to inform decision making process and cannot be used to predict future wellbeing. Fetal surveillance may further increase after 43 weeks following an individual risk assessment with an obstetrician.

Any woman choosing to delay induction of labour past 42 weeks gestation may change her mind about her chosen care options at any time. If a woman chooses to labour outside of the Obstetric Unit after 42+0, ongoing care plans should be made with the woman, informed by evidence and documented in the handheld maternity record. The maternity leaflet in appendix A https://ctmuhb.nhs.wales/services/maternity/labour-and-birth/induction-of-labour/so-you-want-to-know-more-about-induction-of-labour/ should be provided.

II. Pregnancy induced hypertension/ Pre-eclampsia.

The timing of IOL should be agreed as per Guideline for the Management of Hypertensive Disorders in Pregnancy…. https://wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/management-of-hypertensive-disorders-in-pregnancy-guideline/

III. Diabetes

The timing of IOL should be agreed as per guideline for the management of Diabetes in Pregnancy (wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/diabetes-in-pregnancyctm-maternity-guideline-2022pdf/)

IV. Obstetric cholestasis

Please refer to: wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/intrahepatic-cholestasis-of-pregnancy-icp/

V. Multiple pregnancy

Please refer to the Guideline for the Management of Multiple Pregnancies.
wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/multiple-pregnancy-guideline-final-after-all-amendments-sept-2023-002-pdf/

VI. Women with a previous caesarean section

Vaginal birth after caesarean section (VBAC) without additional risk factors is not an indication for IOL. Women should be informed of the increased risks of emergency CS and uterine rupture related to IOL. Women booked for IOL with previous CS should have an individualised plan made in consultation with a Senior Obstetrician. This should include the method for IOL. The VBAC pro forma should be completed in full. The use of prostaglandins and oxytocin increases the risk of uterine rupture in women with previous caesarean section. Please also refer to wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/birth-after-caesarean-bac/

VII. Evidence of fetal compromise (ie tailing off growth)

Please refer to the (https://wisdom.nhs.wales/all-wales-guidelines/all-wales-guidelines/all-wales-small-for-gestational-age-and-fetal-growth-restricted-babies-guideline-all-wales-maternity-network-2021-pdf/ for guidance.

VIII. Stillbirth/ Intrauterine Death (IUD)

In the event of an intrauterine fetal death, if the woman appears to be physically well, her membranes are intact and there is no evidence of infection, bleeding, and disseminated intravascular coagulation (DIC) or pre-eclampsia, she should be offered a choice of immediate induction of labour or expectant management. If there is evidence of ruptured membranes, infection or bleeding, immediate induction of labour is the recommended management option.

If a woman who has had an intrauterine fetal death chooses to proceed with IOL, oral mifepristone, followed by vaginal prostaglandin E2(PGE_2) or vaginal misoprostol, should be offered. For women who have intrauterine fetal death and who have had a previous caesarean

section, the risk of uterine rupture is increased. The dose of vaginal prostaglandin should be reduced accordingly, particularly in the third trimester.

Please refer to wisdom.nhs.wales/health-board-guidelines/cwm-taf-gynaecology-file/management-of-late-miscarriage-stillbirth-and-neonatal-deathcwm-taf-gynae-guideline-2022pdf/

IX. Previous precipitate labour

IOL to avoid a birth unattended by a healthcare professional may be considered in women with a history of precipitate labour on an individual basis after counselling by a senior obstetrician at a gestation ≥ 39 weeks.

X. Altered fetal movements

Induction of labour for altered fetal movements may be offered from 39+0 weeks gestation. Women who present with recurrent altered fetal movements (2 or more presentations within 21 days) may be offered earlier IOL if appropriate. Any decision to offer induction before 39+0 should be a consultant decision based on individual risk factors and cervical assessment. Women should be counselled on the benefits and risks of IOL at 39+0. Please also refer to wisdom.nhs.wales/all-wales-guidelines/all-wales-guidelines/all-wales-altered-fetal-movements-managementmaternity-network-wales-2021pdf/

XI. Fetal macrosomia

Women with suspected fetal macrosomia in the absence of diabetes should not routinely be offered induction of labour. Options for birth should be discussed with women which include expectant management, IOL or caesarean birth. Women should be supported in decision-making, using the maternity information leaflet in Appendix A to guide discussions. https://ctmuhb.nhs.wales/services/maternity/labour-and-birth/induction-of-labour/so-you-want-to-know-more-about-induction-of-labour/

XII. Antepartum Haemorrhage (APH) not related to placenta praevia

In the event of APH, induction of labour may be considered to avoid adverse consequences associated with placental abruption. However, it is important to establish if bleeding is an APH or blood stained 'show' as spotting or blood streaked through mucus is unlikely to require active intervention. Please also refer to https://wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/antepartum-haemorrhage-guideline/)

XIII. Maternal age ≥ 40

There is evidence that women ≥40 years of age at conception have a similar stillbirth risk at 39 weeks of gestation as that of women at 41 weeks of gestation in their mid-20s. Therefore, induction of labour can be offered from 39+0 weeks gestation to prevent stillbirth. However, management of each case should be individualised depending on the woman's wishes,

bishop's score and parity. Maternal decisions should be supported by evidence and documented in maternity notes.

XIV. Pre-labour rupture of membranes at term (SROM)

Evidence shows that IOL reduces the risk of infection following pre-labour rupture of membranes. The timing of IOL should be arranged as per the wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/management-of-pre-labour-spontaneous-rupture-of-membranes-srom-at-term-37-0-gestation/ Uncomplicated pre labour rupture of membranes (PROM) is defined as spontaneous rupture of membranes for over 24 hours with clear or pinky liquor in a woman with no symptoms or signs of maternal infection or chorioamnionitis. Women wishing to delay induction of labour after 24 hours of expectant management following pre-labour rupture of membranes in the absence of GBS should be counselled regarding the risks and benefits of expectant and active management, with an ongoing plan of care agreed and documented.

XV. Pre-labour pre-term rupture of membranes (PPROM)

The timing of IOL should be arranged as per the Pre Labour Rupture of Membranes (PPROM) Guideline. Discussion should involve the neonatal team regarding possible outcomes for the neonate.

XVI. Group B Streptococcus (GBS)

After SROM at term and known GBS in pregnancy, immediate admission should be recommended and induction of labour should be planned to commence as soon as practicable. Refer to GBS guideline. Please also refer to the Prevention of Neonatal Early Onset Group B Streptococcal Disease Guidelines (002)

XVII. Maternal request.

Current evidence suggests that IOL at 39 weeks is associated with improved perinatal outcomes, fewer maternal hypertensive disorders and a lower caesarean section rate. Although we don't anticipate a significant number of maternal requests for IOL, discussions around IOL from 39 weeks can be supported on an individual basis. Women should be treated individually following review with a Consultant Obstetrician. Women should also be informed that if maternity unit acuity is high, the induction may be delayed if there aren't significant medical or obstetric concerns. This is not a clinical indication, but may be considered as part of individualised care planning.

NB. To support discussions, please use decision making tool in appendix 4 relevant to the clinical indication.

4. Contraindications for Induction of Labour

The following conditions should be considered as contraindications to induction of labour.

- Major degrees of placenta praevia. Clinical decision making will be informed based on the ultrasound examination findings (guideline link)
- Malpresentation of the fetus (ie. breech/oblique/transverse).
- Previous classical caesarean section or myomectomy.
- Fetal Heart rate abnormalities.
- Known hypersensitivity to prostaglandins.
- Fetal growth restriction with confirmed fetal compromise

5. Induction of Labour Booking Process

5.1 Information and decision-making

When IOL is being considered, the pregnant woman should make an informed choice, based on the most recently available evidence. They should be advised that most women will go into labour spontaneously by 42 weeks. The following information should be provided verbally to women being offered induction of labour:

- The reasons for induction of labour being offered
- When, where and how induction of labour will be carried out
- Possible length of IOL, which may vary from a few hours to several days
- The arrangements for support and pain relief
- The alternative options. If the woman chooses not to have induction of labour, the discussion should be fully documented
- The likelihood of failed IOL and the woman's options

The discussion should be supported by the relevant maternity information leaflet (appendix A) https://ctmuhb.nhs.wales/services/maternity/labour-and-birth/induction-of-labour/so-you-want-to-know-more-about-induction-of-labour/ and be fully documented in the maternity record. Discussions should be supported using the Benefits, Risks, Alternatives, Intuition and (do) Nothing (BRAIN) framework.

5.2 Consent and information for Induction of Labour

IOL arrangements should only be made after a fully informed discussion with the woman, as outlined above.

Any discussions and decisions should be documented on the IOL booking pro forma. The woman should be informed that she can change her mind at any time.

Make sure that the woman and support person/ people have understood the indications for, as well as the proposed method(s) of IOL.

Inform the woman and the partner that induction of labour may be delayed based on the acuity of the unit. If the induction is delayed appropriate monitoring of mother and fetus will be planned to reduce the risks.

5.3 Booking an induction of labour

There is a digital induction of labour booking system in place to improve the management and flow of women being booked for induction of labour. Obstetric staff will complete the proforma using the clinical assessment tool (appendix 4). All fields on the induction of labour booking sheet must be completed to be accepted. IOL booking will be challenged and will not be accepted outside of the criteria detailed in the priority tool.

The proforma will be given to one of the antenatal clinical staff to arrange the booking date for IOL.

IOL Booking process for women outside of antenatal clinic is as follows:

Monday to Friday (07.00 -17.00hrs) contact Prince Charles Hospital (PCH) ANC on 01685 728892 and Princess of Wales (POW) 09.00 – 17.00hrs on 01656 752475

Out of hours on weekends: Contact the labour ward coordinator in PCH 01685 728870 and POW 01656 752383

The system is accessed by specific staff via fileshare to ensure a comprehensive audit trail.

- Antenatal Clinic staff
- Labour ward Coordinators
- Maternity Acuity Manager (MAM)
- Operational Leads

5.4 Prioritising the Induction of Labour Workload

All inductions of labour (not yet started and ongoing) should be reviewed on a daily basis by the Labour Ward Consultant Obstetrician, Operational Lead Midwife and Labour Ward co-ordinator during the safety huddle. The order of IOL's should be based on clinical priority, utilising the prioritisation tool in appendix 4. An ongoing induction should be considered as a priority over any IOL's not yet started. If the prioritisation list requires review, this should be undertaken by a Senior Obstetrician, Operational Lead Midwife and the Labour Ward co-ordinator, as well as the neonatal unit co-ordinator. Any reprioritisation should include an assessment of the risks of delay. If delay is necessary, the reasons for this, as well as a plan for ongoing care and monitoring should be fully documented in the woman's notes.

6. Induction of Labour Processes

When a woman is admitted for IOL, the IOL Care Guideline should be followed. A plan of care, including indication, method of induction and frequency of electronic fetal monitoring, should be clearly documented in the woman's records. All care should be documented in the Induction of Labour Pathway.

Induction agents should be prescribed prior to commencing any procedure, and should be done at the time of decision. Verbal orders should **never** be accepted. The Obstetrician must review all high-risk women in person prior to commencing IOL.

Please refer to the flow chart in appendix 2 for the process of IOL

6.1 Admission for IOL

Induction of labour will usually be carried out on maternity ward, unless it has been clearly documented that care should be provided on labour ward. All high-risk women admitted for IOL must be reviewed by the Obstetric team prior to commencing IOL.

On arrival to the ward, the admitting midwife will check the following and document on the IOL pathway:

- Indication for induction.
- EDD.
- Vital signs and urinalysis.
- History of fetal movements.
- Allergy Status.
- Abdominal palpation. If there is any malpresentation or if fetal head is not engaged the Obstetrician ST3, ST4, ST5 (Registrar) should be informed. Presentation scan should be performed to confirm presentation before the start of process
- Ensure that the appropriate dinaprostone 10mg/alternative method of induction is prescribed by the Obstetrician. Analgesia should also be prescribed to be used if required.
- A 30-minute CTG

If there are any concerns, the midwife will discuss these with a Senior Obstetrician before the IOL commences.

6.2 Overview of Induction of Labour

6.2.1 Membrane Sweeping

At antenatal visits after 39+0 weeks, discuss with women if they would like a vaginal examination for membrane sweeping, and if so obtain verbal consent from them before carrying out the membrane sweep. The risks and benefits of membrane sweeping should be discussed to facilitate decision making. Prior to the procedure, the woman should be provided the following information;

A membrane sweep is associated with:

- Reduced time between sweep and onset of labour.
- Reduced incidence of prolonged pregnancy.

- Reduced need for other methods of induction.
- Increased incidence of maternal vaginal bleeding and discomfort.
- There is no evidence to suggest that membrane sweeps increase the risk of maternal or neonatal infection in the presence of intact membranes

Discuss with women whether they would like to have additional membrane sweeping if labour does not start spontaneously following the first sweep.

6.2.3 Non-pharmacological methods of IOL

Women should be informed that the available evidence does **not** support the following methods for induction of labour:

- herbal supplements
- acupuncture
- homeopathy
- certain foods
- castor oil
- hot baths
- enemas
- sexual intercourse.

6.2.4 Surgical and Mechanical methods of IOL

Amniotomy, alone or with oxytocin, should not be used as a primary method of induction of labour unless there are specific clinical reasons for not using vaginal prostaglandin (PGE_2), in particular the risk of uterine hyperstimulation. However, if Bishop's score is favourable for amniotomy to be performed, this can be done if labour ward acuity allows.

Methods of IOL should be discussed and led by the Consultant Obstetrician. Discuss all aspects of the care with clear definition of all responsibilities documented in the woman's records. This should include frequency of surveillance and cardiotocograph (CTG) requirements.

6.3 Pharmacological Induction of Labour stage I

NICE recommends if bishop score ≤ to 6 to use dinaprostone vaginal prostaglandin (PGE_2) as the preferred method of induction of labour, unless there are specific clinical reasons for not using it (in particular the risk of uterine hyperstimulation).

6.3.1 Dinoprostone (formally PROPESS ® 10mg) vaginal delivery system

Dinoprostone is indicated for women with a Bishop's score ≤ to 6. Only a single pessary is required for IOL. This prevents the need for repeated doses and vaginal examinations and can be removed once cervical ripening is complete. It is also easily removed in the event of hyperstimulation.

Dinoprostone (PROPESS®) should be stored in a freezer in its original container to protect it from moisture. It can be used directly from the freezer and for up to 20 minutes afterwards.

For full list of side effects see SPC or BNF On-Line. These include:

- Nausea and vomiting.
- Diarrhoea.
- Hyperstimulation.
- Fetal distress.
- Disseminated intravascular coagulation (DIC) – rare.
- Vaginal/vulval soreness.

I. One vaginal dinoprostone 10mg controlled-release pessary over 24 hours. If the dinoprostone falls out there is no contraindication to replacing the pessary, providing no contamination has occurred. If the dinaprostone is not retained by the woman a clinical decision by the obstetrician should be made. If the dinoprostone has to be replaced or a vaginal examination is necessary to establish commencement of labour, the number of vaginal examinations performed should be clearly documented in the notes.

Dinoprostone should be removed following 24 hours. After use it should be disposed of as clinical waste.

The CTG should continue for 20 minutes of normal fetal heart rate pattern following administration of dinoprostone. The midwife should regularly review the CTG during this time.

After 1 hour, check maternal observations and note any adverse effects (nausea, vomiting, tachycardia, hypotension, fever, vaginal irritation, abdominal pain, vaginal bleeding).

If the woman is not high risk and has a normal CTG, the CTG can be discontinued after the 20 minute normal fetal heart rate pattern. The woman should be advised to inform the midwife is she has any of the following:

- Regular contractions requiring analgesia.
- Vaginal bleeding.
- Reduced fetal movements.
- Dinoprostone falls out or drops lower in vagina.
- If the membranes rupture.
- Continuous abdominal pain.
- Feels unwell.

Following dinoprostone administration, low risk women should be recommended to have repeat CTG's every 6 hours along with 4 hourly maternal observations. If the CTG is confirmed as normal, review the individual circumstances and, if considered low risk, use intermittent

auscultation unless there are clear indications for further cardiotocography CTG must be repeated immediately if onset of regular contractions, SROM or if any concerns are raised by the women or the midwife responsible for care.

Women who are being managed under a high risk pathway should be recommended to have continuous CTG once regular contractions occur.

6.3.4 Removal of Dinoprostone

The vaginal delivery system can be removed quickly and easily by gentle traction on the retrieval tape.

It is necessary to remove the vaginal delivery system to terminate drug administration when cervical ripening is judged to be complete or for any of the reasons listed below.

6.3.4.1. Onset of labour

For the purposes of induction of labour with dinoprostone, the onset of labour is defined as the presence of regular painful uterine contractions occurring every 3 minutes requiring more than simple analgesia (paracetamol) irrespective of any cervical change. There are two important points to note:

I. Once regular, painful contractions have been established with dinoprostone they will not reduce in frequency or intensity as long as dinoprostone remains in situ because dinoprostone is still being administered. Because of this, once regular painful uterine activity is established with dinoprostone in situ, the vaginal delivery system should be removed irrespective of cervical state to avoid the risk of uterine hyperstimulation.

II. Patients, particularly multigravida, may develop regular painful contractions without any apparent cervical change. Effacement and dilatation of the cervix may not occur until uterine activity is established. Because of this, once regular painful uterine activity is established with dinoprostone in situ, the vaginal delivery system should be removed irrespective of cervical state to avoid the risk of uterine hyper stimulation.

6.3.4.2. Removal of dinoprostone - should be removed following spontaneous rupture of membranes or prior to an amniotomy being undertaken.

6.3.4.3 An obstetric review must be undertaken before removal in the following situations

II. Any suggestion of uterine hyperstimulation or hypertonic uterine contractions (tachysystole) should be referred for obstetric clinical assessment.

III. Evidence of fetal distress, abnormal antenatal CTG.

IV. Evidence of maternal systemic adverse effects from dinoprostone such as nausea, vomiting, hypotension or tachycardia.

V. At least 30 minutes prior to starting an intravenous infusion of oxytocin, as there is a much greater risk of hyperstimulation if not removed before administration of oxytocin.

N.B. Dinoprostone is not to be removed in cases of uterine contractions unless the woman is confirmed to be in labour or diagnosis of uterine hyperstimulation is made by means of an abnormal CTG.

6.4 IOL stage II – PROSTIN® gel 1 -2 milligrams to be prescribed by an obstetrician following review (max two doses 6 hours apart)

Women with a Bishop's score greater than 5 will commence IOL at this stage.

After 24 hours of the controlled release of prostaglandin in dinoprostone, the cervix will have been exposed to a total of 10mg of prostaglandin. This is therefore equivalent/greater than the repeated dose regimens of Prostin®.

6.4.1 Following Administration of Prostin®

The CTG should continue for 20 minutes of normal fetal heart rate pattern following administration of Prostin. The midwife should regularly review the CTG during this time.

After 1 hour, check maternal observations and note any adverse effects (nausea, vomiting, tachycardia, hypotension, fever, vaginal irritation, abdominal pain, vaginal bleeding).

If the woman is not high risk and has a normal CTG, the CTG can be discontinued. The woman should be advised to inform the midwife is she has any of the following:

- Regular contractions requiring analgesia
- Vaginal bleeding
- Reduced fetal movements
- If the membranes rupture
- Continuous abdominal pain
- Feels unwell

Following Prostin®, low risk women should be recommended to have repeat CTG's every 6 hours and 4 hourly maternal observations. If after 6 hours and on examination the woman is suitable for amniotomy, contact labour ward to arrange transfer.

If a significant delay for High-Risk Consultant Led cases is anticipated please refer to the obstetrician for an ongoing management plan. This may include recommending transfer to other Obstetric Units within the Health Board. If a significant delay in post term low risk pregnancies is anticipated please escalate to the senior midwife.

CTG must be commenced immediately if onset of regular contractions requiring analgesia, SROM or if any concerns are raised by the women or the midwife responsible for care.

Ongoing management after prostaglandin use

After administration of second dose of Prostin® following six hours from administration a senior obstetric review must be requested for further care plan. Women should be offered 24 hours rest following two cycles of induction agents (X 1dinaprostone and x2 Prostin® or two cycles of Prostin®). The woman must receive the appropriate counselling, including risks and benefits of options for ongoing care.

After the second round of induction agents, a senior obstetric review should be requested for a personalised plan, made in collaboration with the woman.

Note: Women should ***never*** be sent home because the induction process has not resulted in active labour. If a woman takes the decision to discharge this is discharge against medical advice.

6.5 Management of Hyperstimulation

Hyperstimulation is defined as ≥5 contractions in 10 minutes +/- painful contractions each lasting >90 seconds PLUS an abnormal CTG. Hyperstimulation affects <1% cases. The following actions should be taken:

- Remove dinoprostone immediately and inform registrar / consultant on call. Prostin® cannot be removed but the same action must be taken to inform registrar / consultant on call
- Transfer the woman to labour ward immediately for continuous CTG monitoring.
- The active ingredient of dinoprostone has a short half-life therefore after removal of the pessary hyperstimulation should resolve within 20 minutes. This would not be the case with Prostin®.
- If hyperstimulation continues, stat dose subcutaneous terbutaline (250 micrograms) should be administered. This should only occur after senior obstetric review and should be prescribed. The prescription should not delay administration in case of emergency.

6.6 Spontaneous rupture of membranes with Prostaglandin in situ

- dinoprostone should be removed. Oxytocin infusion should not be commenced within 30 minutes of removal. However, if the woman is contracting regularly at this point, it may be appropriate to delay augmentation for 2 hours to see if labour establishes spontaneously.
- If SROM occurs, a CTG should be recommended.
- Transfer to labour ward for augmentation of labour with oxytocin should be considered.

6.7 Fetal monitoring in labour

Providing that the CTGs have been reassuring during the induction process, intermittent auscultation may be used in labour, unless there are clear indications for Continuous Electronic

Fetal Monitoring (CEFM) as described in the fetal monitoring in labour guideline. The plan for fetal monitoring should be discussed with the woman and documented in the notes.

6.8 Commencing Oxytocin after Prostaglandins

See appendix 2 for oxytocin regime for Induction or Augmentation of Labour. Please also note appendix 3 - patient safety notice re use of syntocinon PSA018.

After dinoprostone

If an oxytocin infusion is required following removal of the dinoprostone pessary, it may be started 30 minutes after the time of removal, in the presence of a normal CTG.

After Prostin®

Following administration of Prostin®, a period of at least 6 hours should have passed before commencement of an oxytocin infusion.

N.B. Please also refer to Appendix 4 to support decision making for priority for labour ward in times of high acuity on labour ward.

6.9 Induction of Labour using Oxytocin

See appendix 2 for oxytocin regime for Oxytocin Regime for Induction or Augmentation of Labour. Please also note appendix 3 - patient safety notice re use of syntocinon PSA018.

- Assess cervical status prior to the administration of oxytocin noting effacement, dilation and station (fetal descent).
- If forewaters are present, amniotomy (ARM) should be performed prior to starting an oxytocin infusion.
- Oxytocin should always be prescribed prior to commencing an infusion. A verbal order should never be accepted.
- Oxytocin should be increased at intervals of 30 minutes and titrated against uterine contractions, aiming for a maximum of 4 to 5 contractions every 10 minutes. Please refer to Appendix Three for oxytocin regime.
- The fetal heart rate should be continuously monitored during the oxytocin infusion. CTMUHB Guideline for the Recording and Monitoring of Fetal Heart Rate should be followed. wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/fetal-monitoring-guideline/
- Assess fetal heart rate (FHR) and contraction pattern every 30 minutes or before each incremental increase of oxytocin.
- Assess fluid intake and monitor urine output on a fluid balance chart.

7. Oxytocin for the Arrest of Labour

7.1 Indications to consider the use of oxytocin to augment labour

NB. oxytocin for the arrest of labour should never be commenced without an in person obstetric review with an agreed and documented plan of care to include oxytocin infusion regime.

- Labour not progressing at the rate of 2cm of cervical dilatation in 4 hours in first stage of labour.

- Failure to progress in the second stage of labour should instigate senior obstetric review prior to starting oxytocin in second stage to exclude cephalopelvic disproportion or obstructed labour.

- Women in midwifery led birth settings who may require oxytocin acceleration of labour should be transferred to the obstetric unit for review and an ongoing plan of care.

An oxytocin infusion should only be commenced at any stage of an arrested labour following thorough review by a Senior Obstetrician.

Clinical findings and plan of care should be clearly documented in the case notes.

If the senior obstetrician on call does not attend as requested, the Consultant on call should be contacted via the Band 7 midwife. (Please also see CTMUHB Guideline for Clinical Staff to Access Advice- Jump Call Procedures). wisdom.nhs.wales/health-board-guidelines/cwm-taf-maternity-file/escalation-policy/

NB. A plan of care via telephone must never be accepted in any circumstance.

7.2 Uterine hyper contractility with oxytocin use

When a non-reassuring or abnormal CTG is present, the infusion should be decreased or discontinued. Uterine hyper contractility with or without FHR changes usually resolves with reducing or stopping the infusion, but if this fails then tocolysis should be considered using subcutaneous terbutaline 250 micrograms. Senior obstetric review should be sought and an appropriate prescription provided.

7.3 Pain relief

Birth attendants (Midwife / Obstetrician) should offer women support and analgesia as required, and should encourage women to use their own coping strategies for pain relief. The use of water for pain relief may be offered even when continuous fetal heart monitoring is required, including when dinaprostone is in situ.

7.4 Failed Induction

Failed induction is defined as labour not starting after two cycles of treatment.

If IOL is unsuccessful, discuss and agree a plan for further management with the woman, including whether she would like further attempts at induction, taking into account the clinical circumstances and her preferences. If induction fails, the woman's condition and the pregnancy in general should be fully reassessed, and fetal wellbeing should be assessed using electronic fetal monitoring.

Decisions about further management should be supported by a senior obstetrician in accordance with the woman's wishes, and should take into account the clinical circumstances. These may include:

- offering a rest period if clinically appropriate and then re-assessing the woman
- expectant management
- further attempts to induce labour

8. Related Audit

- Women induced that meet the criteria for IOL
- Number of women having membrane sweeps prior to IOL
- Delays during the IOL procedure
- IOL Pathway Compliance

9.0 References

Induction of labour: clinical guideline (NG207) National Institute for Health and Care Excellence, (NG207) November 2021

Induction of labour at or beyond term. Geneva: World Health Organization (WHO); 2011. 3.

Induction of labour in older mothers, RCOG Scientific Impact paper No 34, February 201

Induction of labour: including oxytocin infusion (V10) Heart of England NHS Foundation Trust2018

NICE (2025). BNF. Available at: https://bnf.nice.org.uk/ (Accessed March 2025).

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Birth after caesarean section: RCOG Green Top Guideline No 45, 2015.

Heart of England NHS Foundation Trust 2018 Induction of labour (IOL) including oxytocin Infusion (V10). November 20

Patient Safety Notice (PSN 2024) Welsh government. Risk of oxytocin overdose during labour and childbirth

Appendix 1: Induction of Labour Procedure

I. Introduce yourself to the woman.

II. Begin IOL pathway, completing all necessary risk assessments prior to commencing any procedure.

III. Ensure plan for IOL is clearly documented and prostaglandins are prescribed correctly. If the clinical situation has changed since the plan for IOL was made, Obstetric review should be undertaken. Verbal orders should **not** be accepted.

IV. Perform and document an antenatal assessment, including risk assessment, MEWS, urinalysis and abdominal palpation.

V. Complete CTG for 30 minutes, or until fetal wellbeing is established.

VI. If the initial assessments and CTG are satisfactory, and after obtaining consent, perform a vaginal examination using water based lubricant gel. A modified Bishop's score should be documented as follows;

SCORE	0	1	2	3
Position of Cervix	Posterior	Mid	Anterior	-
Consistency	Firm	Average	Soft	-
Length	>4 cm	2 cm	1 cm	<1 cm
Dilatation	<1 cm	1 - 2 cm	3 – 4 cm	>4 cm
Station	- 3	- 2	-1/ 0	+1

VI. If the Bishop's score is ≤ 6, insert the dinoprostine 10mg pessary in between fingers and slide into the posterior fornix. Turn pessary into transverse position in the posterior fornix, withdraw fingers carefully allowing pessary tape to run the length of the vagina and allow to hang outside the vulva.

VII. Perform a CTG for a minimum 20 minutes following insertion, or until fetal wellbeing is established.

VIII. Advise the woman to take care when visiting the toilet not to pull on the tape. If at all concerned the woman should be told to inform a midwife.

IX. If the dinaprostone falls out there is no contraindication to replacing the pessary, providing no contamination has occurred. If the dinaprostone has to be replaced or a vaginal examination is necessary to establish commencement of labour, the number of vaginal examinations performed should be clearly documented in the notes.

X. PROPESS® administration should be omitted and a referral made to the senior obstetrician if any of the following occur:-

a. Uncertainty regarding presentation by abdominal palpation.

b. SROM has occurred

c. Abnormal CTG or you have concern regarding the fetal heart

XI. If any risk factors exist, a CTG should be recommended every 6 hours, or earlier if clinically indicated. If the woman complains of regular, painful or excessive uterine activity at any time, a CTG should be performed to determine fetal wellbeing. Risk factors include;

- Previous caesarean section
- Pre term (<37 weeks)
- Prolonged Rupture of Membranes
- Post term (>42 weeks)
- Multiple Pregnancy
- Fetal growth restriction(FGR)/Intrauterine growth restriction(IUGR)
- Vaginal bleeding
- Low amniotic fluid index (AFI)
- Diabetes
- Raised Blood pressure / Pre eclampsia Toxaemia (PET)
- Altered fetal movements

This list is not exhaustive, and clinical judgment should always be used.

XII. Once labour has been diagnosed, or 24 hours have passed since insertion, retrieve the pessary by giving gentle traction to the protruding tape at the vulva, until completely removed.

XIII. A vaginal examination should then be performed with consent to assess the Bishop's score and determine if further prostaglandins are needed, (please see flow chart in Appendix A), and a CTG performed

XIV. If the CTG is normal, and Bishop's score is below 8, insert Prostin gel 1 – 2 milligram(mg) as prescribed following obstetric review al tablet high into the posterior fornix.

XV. Follow with a 20 min CTG or continue until fetal wellbeing is established.

XVI. The process can be repeated after six hours (maximum dose 6 mg in 24 hours).

XVII. Senior obstetric review should take place every 24 hours, with a clear plan for continued care.

XVIII. If the woman has not laboured after completing the regime, she will have a senior obstetric review. A 24 hour rest period should be considered and then the regime repeated if an ARM cannot be performed.

XIX. If there is any delay at any point during the entire IOL procedure (start of IOL to birth of baby), the reasons for this should be clearly documented in the pathway and escalated to the most appropriate clinician for guidance. DATIX should be completed.

XX. If delays are necessary due to workload, an Obstetric review will take place for revised plan of care taking into account the clinical situation and risk factors.

Appendix 2: Oxytocin Regime for Induction or Augmentation of Labour

INDICATION	Induction or Augmentation of Labour The frequency, strength, and duration of contractions as well as the fetal heart rate must be clearly monitored throughout the infusion. Once an adequate level of uterine activity is attained, aiming for 4-5 contractions every 10 minutes, the infusion rate can often be reduced. In the event of uterine hyperactivity and/or fetal distress, the infusion must be discontinued immediately. 'please see appendix 3 – oxytocin patient safety notice PSA'
CAUTIONS	• Oxytocin should not be started for 6 hours following administration of vaginal prostaglandins. • Prior to commencing oxytocin patients should have a reassuring cardiotocograph (CTG). • Use with caution in the presence of borderline cephalopelvic disproportion, secondly uterine inertia, mild or moderate degrees of pregnancy-induced hypertension or cardiac disease, and in patients above 35yrs of age or with a history of lower-uterine-segment caesarean section (see VBAC Guideline on SharePoint).
Dose and Route	Augmentation of the first stage of labour: Use same regimen for primigravid and multigravid women

Dose and Route contd..

10 units oxytocin in 500mls of sodium chloride 0.9% given by infusion pump. All entries made should be in millilitres/minute (1 unit=1000 milliunits)

Higher rates occasionally may be needed up to 32 milliunits/min (96ml/hour of 10units in 500ml) ***but only*** *after discussion with a senior registrar or consultant)*

Time after starting infusion (minutes)	Rate of infusion (ml/hour)	Oxytocin dose (milliunits/minute)
0	3	1
30	6	2
60	12	4
90	24	8
120	36	12
150	48	16
180	60	20

Arrest in the second stage of labour:

Augmentation in the second stage of labour should only be commenced following review by a senior registrar or consultant. 'See appendix 3: patient safety notice PSA'

Start infusion at **4 milliunits /min** (12ml/hour) and increase by **4 miliunits/min** (12ml/hr) every **15 minutes** as required. Max dose 20 milliunits/min (60ml/hour). *Higher rates occasionally may be needed to 32milliunits/min (96ml/hour of 10units in 500ml)* ***but only*** *after discussion with senior registrar or consultant and documented instruction to do so.*

	10 units oxytocin in 500mls sodium chloride 0.9% given by infusion pump		
	Time after starting infusion (minutes)	Rate of infusion (ml/hour)	Oxytocin dose (milliunits/min)
	0	12	4
	15	24	8
	30	36	12
	45	48	16
	60	60	20
	(1 unit = 1000 milliunits)		

Appendix 3: Patient Safety Notice – Oxytocin

Patient Safety Notice

PSA018 / September 2024

GIG CYMRU NHS WALES

Llywodraeth Cymru Welsh Government

Risk of oxytocin overdose during labour and childbirth

To: Organisations providing maternity services.

This is a safety critical and complex National Patient Safety Alert. Implementation should be co-ordinated by an executive lead (or equivalent role in organisations without executive boards) and supported by clinical leads in maternity, anaesthetics, theatres, and pharmacy

Explanation of identified safety issue:

Oxytocin can be given in low dose infusions to induce labour or to augment contractions during labour (intrapartum), and in significantly higher doses following birth (postpartum) to manage a postpartum haemorrhage (PPH).

Midwives need to complete several tasks immediately and simultaneously following birth to ensure the safety of both the mother and baby. To support this, postpartum oxytocin infusions have been prepared in advance of being required.

If a pre-prepared oxytocin infusion is unintentionally given before the baby is born, for example if it is confused with standard fluids or the intrapartum and postpartum infusions are confused, the woman's contractions will increase in frequency and strength. This can lower the baby's oxygen levels and alter their heart rate, increasing the risk of placental abruption (where the placenta prematurely separates from the uterus and deprives the baby of oxygen).

A review of the English National Reporting and Learning Systems over a 5 year period identified 25 incidents including one report of a woman receiving a pre-prepared postpartum oxytocin infusion in place of IV fluids while in labour. The baby's heart rate slowed, and the woman required an emergency caesarean section due to a placental abruption. The baby was born in poor condition and admitted to the neonatal intensive care unit (NICU) for close monitoring.

Actions

Who: Clinical Leads in maternity, anaesthetics, theatres, and pharmacy

Actions to be completed as soon as possible but no later than 31 March 2025.

Review and update local clinical procedures (or equivalent documents) to ensure:

1. Oxytocin infusions are not pre-prepared in any clinical area (including delivery suites and theatres). NOTES A, B, C

2. A post-partum haemorrhage (PPH) kit is immediately available in all clinical areas/theatres where it may be required. NOTE D

3. Where a woman is identified to be at high risk of PPH:

a. the PPH kit should be brought into the labour/delivery room/theatre during the second stage of labour

b. the postpartum oxytocin infusion should be prepared at the time of birth and not before NOTE E

Queries should be sent to Patientsafety.wales@wales.nhs.uk

Other reports described:

- postpartum oxytocin regimens accidentally given during labour or in theatre pre caesarean section,
- oxytocin infusions and IV fluids being confused, leading to oxytocin infusions running through freely or at a significantly increased rate during labour.

This alert seeks to balance the benefit of ensuring an oxytocin infusion can be started immediately after a woman (at high-risk of PPH) has given birth and mitigate the risk of preparing the oxytocin infusion in advance.

c. a second midwife should be available to support the administration of the postpartum oxytocin infusion. In Wales there is a national policy on second independent practitioner check and who can undertake this check: AWMSG MARRS policy - AWMSF MARRS guidelines[9]

4. Roles and responsibilities of staff groups in the labour setting, including theatres, are clearly defined in terms of prescribing, preparation, administration and disposal of oxytocin infusions. NOTE F

Including:

- intrapartum oxytocin infusions,
- postpartum oxytocin infusions,
- unused, pre-prepared oxytocin infusions.

Queries should be sent to Patientsafety.wales@wales.nhs.uk

Additional information:

NOTES

A. Oxytocin can also be administered as a bolus injection. The alert does not impact on this method of administration.[1]

B. Ideally, ready-to-administer oxytocin infusions should be available to further reduce the associated risks. Pharmacy services have been asked to consider producing oxytocin infusions and supplying these in a sealed, clearly labelled bag. Organisations should discuss this option with their pharmacy department or alternatively seek to buy ready-to-administer infusions from a commercial manufacturer.

C. Consideration should be given to the use of carbetocin[2] as this is given by bolus injection and negates the need to prepare an infusion.

D. Current best practice recommends all maternity units should have a PPH emergency kit/trolley.[3,4] The kit/trolley should contain all consumables, treatment algorithms and medication (where possible) and should be checked regularly. The PPH kit/trolley does not necessarily have to be in each delivery room, but should be immediately available. Work is ongoing to standardise PPH kits/trolleys. [5]

E. Organisational medicines policies must reflect good labelling guidance, including the need for visible and consistent labelling of all infusions to clearly differentiate all those being administered.

F. It is not always possible to specify roles and responsibilities for every clinical scenario, especially when oxytocin may be administered in an emergency. However, local clinical procedures should clearly articulate roles and responsibilities in planned situations and in complex situations where there are handovers of care, for example if the woman is transferred to theatre and within the theatre environment.

Patient safety incident data

The NRLS and StEIS were searched on two separate occasions using a combination of keywords (ref: 5255/5431) to identify relevant incidents. Incidents were thematically reviewed and the combined searches over a five-year period identified a total of 25 incidents in which oxytocin infusions were administered in error during labour or postpartum, leading to oxytocin overdose. In all incidents staff recognised the error and acted rapidly to prevent more serious consequences, for example death or brain damage. Identified concerns/themes included:

- oxytocin infused at too high a rate due to confusion between oxytocin in 500mL or 1000mL bags and IV fluids, or confusion between IV lines running simultaneously for oxytocin and IV fluids
- pre-prepared postpartum oxytocin infusion readily available in the labour room and in theatre, increasing the risk of it being administered at the wrong time.

Two national reports [6,7] highlight the potential significant risk to babies following oxytocin overdose if there are issues with interpretation of their fetal heart rate and timely escalation of concerns.

Queries should be sent to Patientsafety.wales@wales.nhs.uk

References

1. Royal College of Obstetricians and Gynaecologists. Prevention and management of postpartum haemorrhage (Green-top Guideline No. 52). December 2016.
2. Day A, Barclay P, Page L. is there a role for carbetocin in the prophylaxis of postpartum obstetric haemorrhage? Drug Ther Bull 2022;60(9):136-140.
3. PROMPT Maternity Foundation. Practical obstetric multi-professional training
4. WHO Recommendations on the assessment of postpartum blood loss and use of treatment bundle for postpartum haemorrhage. 2023 https://www.who.int/publications/i/item/9789240085398
5. Woodward M, Ansari A, Draycott T, et al. Characterising and describing postpartum haemorrhage emergency kits in context: a protocol for a mixed-methods study BMJ Open 2021;11:e044310.
6. NHS Resolution. Five years of cerebral palsy claims 2017.
7. Royal College of Obstetricians and Gynaecologists. Each Baby Counts 2020 final progress report
8. Specialist Pharmacy Service.
9. AWMSG MARRS AWMSF MARRS guidelines

Stakeholder engagement

- Royal College of Obstetricians & Gynaecologists
- Royal College of Anaesthetists
- Specialist Pharmacy Service
- NHS England Chief Midwifery Officer
- The Royal College of Midwives
- Obstetric Anaesthetists' Association
- National Clinical Director (Maternity)
- National Patient Safety Response Advisory Panel

This is a safety critical and complex National Patient Safety Alert. Your organisation should have developed processes to ensure appropriate oversight and co-ordination of all Patient Safety Solutions. This Alert should be actioned by the organisation's nominated lead, copying in the leads identified on page 1.

Queries should be sent to Patientsafety.wales@wales.nhs.uk

Appendix 4: booking form and clinical decision assessment tool

- **Consultant**……
- **IOL requested by**:
    - Dr Name……
    - Grade……
- **Date of booking IOL**……/……/……
- **IOL booked for (date)**……/……/……
- **IOL booked in the diary/ electronic**…… ☐
- **Gestation on IOL date ..**……/40
- **What priority level? 1 / 2 / 3** (Calculate using table on back)
- **Indication ……..**

Name:

M number:

Telephone number:

- EDD……/……/……..
- Booking BMI……
- Para……..Gravida……..
- Previous CS? Y / N → Number: ……
- GBS: +ve / -ve / unknown

Checklist for IOL whilst on phone:

- IOL discussed with the consultant ☐
- IOL explained to patient (inc. priority) ☐
- IOL leaflet given to patient ☐
- Sweep performed ☐
- Suitable for outpatient IOL ☐
- Medications prescribed ☐
- <u>Suitable agents / methods of IoL:</u>

  Propess ☐ Prostin ☐ Oxytocin ☐ ARM ☐ Dilapan ☐

Further considerations/alerts:

……

……

Clinical condition	Recommended gestation for IOL	Priority level
Post dates	T+12	1
Preexisting diabetes – Type 1 or 2	37 to 38+6 weeks	1
GDM low risk • **Diet/metformin controlled** • **Stable blood glucose** • **Normal AFI and normal growth**	39 to 40 weeks	2
GDM complicated • **Fetal macrosomia** • **Insulin** • **Poorly controlled blood sugar** • **IUGR**	37 to 38+6 weeks	2
Maternal age >40 years	39 to 40 weeks	1
IUGR/SGA	• Booked through consultant clinic only • Consider IOL at 37 weeks • Consider IOL at 34 weeks if static growth for 2 readings or abnormal Doppler	1
Pre eclampsia	Less than 37 weeks (consultant decision) More than 37 weeks	1 1
PIH • **Mild-moderate** • **Severe**	 More than 37 weeks 37 weeks	 2 1
Proteinuria (PCR ≥30)	40 weeks	2
Obstetric Cholestasis • **Bile acids >40** • **Bile acids 12-40**	 37 to 39+6 weeks 40 to 41 weeks	 2 2
Previous traumatic birth	Consultant decision	3
Mental illness	Consultant decision	2
Pelvic girdle pain	39 to 40 weeks	3
Multiple pregnancy • **DCDA** • **MCDA (No TTTS)** • **MCDA (TTTS)**	 37 weeks 36 weeks Consultant decision	 2 2 1
IVF	Not reason for IOL, can be induced at 40 weeks	
Reduced fetal movements (3 episodes and above)	39 to 39 weeks – Consultant decision 39 weeks	3 1
Severe anxiety	39 weeks – consultant decision	2
Macrosomia (EFW >95th centile)	39 weeks	3
Maternal choice		3
Uncomplicated ruptured membranes at term ≥24 hours	37 to T+12 weeks	1
PPROM	37 weeks	1
Low Papp-a	40 weeks – Consultant decision	2

Please Note: Priority 1 = high priority, Priority 2 = moderate priority, Priority 3 = low priority