Worcestershire Acute Hospitals NHS Trust

Induction of Labour (IOL)

This guidance does not override the individual responsibility of health professionals to make appropriate decision according to the circumstances of the individual patient in consultation with the patient and /or carer. Health care professionals must be prepared to justify any deviation from this guidance.

Introduction

This guideline is to be used by staff when discussing or making decisions relating to Induction of Labour in pregnancy. This Guideline covers routine post-dates IOL as well as IOL for clinical need in pregnancy.

This guideline is for use by the following staff groups:

Medical staff and Midwives discussing and/or performing IOL.

Lead Clinician(s)

Miss Laura Veal	Consultant Obstetrician (Clinical Director)
Approved by *Maternity Governance* on:	16th September 2022
Approved by Medicines Safety Committee on:	14th December 2022
Review Date: This is the most current document and should be used until a revised version is in place	14th December 2025

Key amendments to this guideline

Date	Amendments	Approved by
21st August 2020	Amendment regarding midwifery students in years 2 & 3 administering prostaglandin under the guidance of a midwife	Maternity Governance Meeting
November 2020	IOL in women who have had a previous C/S	MGM
March 2021	Changes to IOL guidance and management plan information for women who decline IOL	MGM
November 2021	NICE changes for post dates and LGA	MGM
16th September 2022	Changes to recommendations and wording for Post Dates and LGA IOL. 'Management of Women awaiting ARM' section has been added.	MGM
15th September 2023	Amendments and additions to the 'Management of Women awaiting ARM' section. Also changes to criteria surrounding mechanical IOL methods.	MGM
15th March 2024	Amendments to ARM waiting list process.	MGM

Contribution List

This key document has been circulated to the following individuals for consultation;

Designation
Divisional Director of Midwifery
Consultant Obstetricians
Maternity Matrons
Obstetric Medical Staff
Community Midwifery Team Leaders
Inpatient Maternity Ward Managers
Outpatient Maternity Managers
Consultant Midwife
Maternity Governance Team
Practice Development Midwife Audit, Guideline and Patient Experience Midwife

Contents Page:

Introduction and background

The requirement for induction of labour arises from circumstances in which the outcome of the pregnancy may be better if it is artificially interrupted. IOL can increase risks of intrapartum complications in some women and may place workload pressures on the delivery unit. Induced labour also has an impact on the birth experience of the women. It may be less efficient and is usually more painful than spontaneous labour and epidural analgesia and assisted delivery are more likely to be required.
Therefore, it is only justified when there is greater benefit to the health of the mother and/or baby than if the pregnancy continues (NICE NG207). The absolute risk of perinatal death is low, with the number needed to treat to prevent 1 perinatal death being 544 (Cochrane Review, 2020).

About 31% of births in the UK are now induced. This has been increasing in UK. This includes induction for all reasons.

Prior to 39 weeks gestation, induction of labour is associated with an increased risk of, perinatal morbidity, admission to the neonatal unit and neurodevelopmental delay. , A recommendation for inducing delivery needs to be individualised and based upon evidence of fetal compromise (for example, abnormal CTG, EFW <10th centile or oligohydramnios) or other concerns (for example, concomitant maternal medical disease, such as hypertension or diabetes, or associated symptoms such as antepartum haemorrhage).

From 39 weeks of gestation and beyond, induction of labour may not be associated with these risks. But the evidence is limited. Individual discussion regarding personal risks, benefits and mother's wishes needs to take place with women presenting with requirement for induction of labour (Saving Babies Lives Care Bundle Version 2)

Woman Centred Care and planning for Induction of Labour

Treatment and care must take into account women's individual needs and preferences. Women who are having or being offered induction of labour should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals (NICE NG207). The overall decision about all care options is the woman's.

Women are central decision makers in their care and discussions about birth timing/planning must include their preferences, wishes and a full, documented discussion of the risks/benefits of any alternative treatments/actions (NICE NG138).

Therefore, healthcare professionals must explain the following points to women being offered induction of labour and these must be documented on Badgernet. They must be given in an unbiased way that the woman can understand. The 'BRAIN' acronym can be used to assist with counselling.

'B' - Benefits

- The reasons for induction being offered and the possible benefits **'R' – Risks. The possible risks of induction and the potential of IOL to affect the Woman's birth options and their experience of the birth process. This should include:**
- Vaginal examinations to assess the cervix are needed before and during induction to determine the best method of induction and to monitor progress

- Their choice of place of birth may be limited, as they may need interventions that are not available for home birth or in midwife-led birth units
- Their hospital stay may be longer than with a spontaneous labour (NICE NG207)
- An induced labour may be more painful than a spontaneous labour.
- The arrangements for support and pain relief
- That in an induced labour where oxytocin is used continuous fetal monitoring will be recommended.
- There may be limitations on the use of a birthing pool but this may be possible with the use of Telemetry monitoring if it is available.
- The need for an assisted vaginal birth (using forceps or ventouse) might increase, with the associated risk of obstetric anal sphincter injury
- Some methods of induction can cause the uterus to contract too frequently, called hyperstimulation, and that these too-frequent contractions can lead to changes in fetal heart rate and result in concerns about fetal wellbeing (NICE NG207)
- That induction may not be successful and how this would affect the woman's options.

'A' - Alternatives

- The alternative options if the woman chooses not to have induction of labour, or decides at a later stage that she no longer wishes to proceed with the induction process

'I' – Intuition

- How does she feel about her pregnancy and care plans?
- What does her gut tell her?
- What does she feel is the right option for her?
- Ensure her intuition and feelings are considered and central to all discussions around her care.

'N' – Nothing

- What would happen if we did nothing?
- What would happen if we wait an hour? a day? a week?
- You might apply the first part of the BRAIN acronym to doing nothing: What are the benefits of doing nothing? What are the risks? What are the alternatives? What does intuition say?

'S' Space

The woman must have time to:

- Discuss the information with her partner before coming to a decision
- Encouraged to look at a variety of sources of information and pointed in the right direction for this
- Invited to ask questions and encouraged to think about her options

All women should also be informed

- When, where and how induction could be carried out
- The arrangements for support and visiting times for partners
- The risks and benefits of induction of labour in specific circumstances
- the proposed induction methods

Information will be supported by evidence-based written information tailored to the needs of the individual woman.
Information about treatment and care, and the information to women should be culturally appropriate. It should also be accessible to women, their partners and families; considering any additional needs such as physical or cognitive disabilities, neurodivergence and inability to speak or read English.

If a woman does not have the capacity to make decisions, healthcare professionals should follow the
Department of Health guidelines – 'Reference guide to consent for examination or treatment' (2007). Healthcare professionals should also follow a code of practice accompanying the Mental Capacity Act (Office of the Public Guardian, 2007) Good communication between healthcare professionals and women is essential. (NICE 70).

Guidance for booking arrangements and managing capacity for IOL

- The IOL pathway must be clear to reduce risks both to mother and baby and improve the patient flow and experience of the woman.

- All inductions of labour that are outside of clinical guidance, must be discussed with the Consultant in clinic or on call.

- When booking an IOL, a vaginal examination should be offered to assess cervical status/Bishop Score and a membrane sweep offered

- If an IOL is booked antenatally in advance, please ensure appropriate follow up is in place for sweep in advance of the date of IOL.

- If the patient is suitable for artificial rupture of membranes (ARM) and therefore prostaglandins are not required, this should be communicated with the ward on booking the IOL.

- At the time of booking IOL women should be informed that there may be potential delays during IOL depending on the activity in the delivery suite.

- No more than 6 inductions are to be booked through the antenatal ward in a 24 hour period at Worcestershire Royal Hospital – this includes ARMs.

- Inductions booked by Community Midwives are to be phoned directly to the Antenatal ward and entered into the induction diary. Under no circumstances should Community Midwives enter them into the book directly themselves.

- Aim to admit women suitable for ARM directly to Delivery Suite if possible.

- Once the induction is booked, women must be asked to **phone the antenatal ward at 11am on the day of their induction** to determine if there is a bed available and at what time they should attend.

- Each day after the ward round, the on-call Consultant Obstetrician should review all inductions for the day in discussion with the midwife in charge of antenatal ward and the Band 7 in charge of delivery suite. The capacity to enable the inductions to be performed should be assessed and the attached flow chart and RAG rating (Appendix A and B) referred to if capacity is reduced. The inductions must be prioritised according to clinical need in order to guide midwives on when to invite the patients in or to assess which inductions can be safely deferred if capacity does not allow them to be admitted.

- Inductions of labour from the previous day must also be reviewed to establish if these were performed or delayed and to ascertain the outcome. This process is to ensure that no inductions are overlooked or delayed unnecessarily.

- Where women have commenced the IOL process and Delivery Suite activity is high - a decision to delay or suspend IOL for women should be taken ONLY by the Consultant Obstetrician on

call. Appropriate safety measures must be put in place with regards to monitoring both Mum and baby daily in the Day Assessment Unit and women should be kept updated on when IOL will resume/take place.

- If the IOL process has not commenced and Delivery suite/Maternity Unit activity is high then women booked to come in for IOL should be discussed between the delivery suite manager and consultant obstetrician. Delaying commencement of IOL should be considered on a case by case decision.

- If after discussion with the on-call Consultant there are serious concerns regarding the number of inductions pending and/or the Units capacity escalation must take place according to the escalation policy.

- **It should also be discussed at the Digital Safety Huddle with Wye Valley NHS Trust/Hereford to discuss if they can accept any inductions that are waiting, provided the woman is happy to be transferred to Hereford.**

- Inductions of labour for non-obstetric reasons (only required in exceptional circumstances) should only be a consultant decision. In such cases the name of the Consultant should be clearly documented on Badgernet. If there is no consultant present in the clinic, it should be discussed with the on-call consultant.

Indications for Induction

Evidence suggests that estimated due date should be confirmed by ultrasound scan before 20 weeks (RCOG, 2001) however it is important to acknowledge that some women will decline any surveillance or screening.

Induction of labour is usually offered on the basis of a confirmed estimated due date by ultrasound scan.

The process for induction of labour should be considered when vaginal delivery is felt to be the most appropriate route of delivery.

The decision on timing and method of IOL should be made at consultant level after discussions and consent from the woman. If this is before 39 weeks then relevant risks should be discussed including the increased risk of perinatal morbidity, developmental delay and behavioural issues in childhood and documented on Badgernet. **What are the risks after 39 weeks of IOL-these need to be mentioned, such as birth experience, choices in labour and birth, experience and increase risk of hospitalisation for infections up to the age of 16 (Dahlen et al 2023)**

  - **Prolonged pregnancy** Explain to a woman that labour usually starts naturally by 42+0 weeks, based on the gestational age estimated by their dating scan (NICE 2021)

Gestational age (weeks)	Proportion of spontaneous labours that started at this gestational age	Cumulative proportion of spontaneous labours that started by this gestational age
31 weeks and under	2.4%	2.4%
32+0 to 36+6 weeks	5.3%	7.7%
37+0 to 37+6 weeks	5.1%	12.8%
38+0 to 38+6 weeks	12.1%	24.9%
39+0 to 39+6 weeks	25.4%	50.3%
40+0 to 40+6 weeks	32.5%	82.8%
41+0 to 41+6 weeks	16.2%	99.0%
42+0 weeks and over	0.9%	100%

Data from NHS Hospital Episode Statistics/Maternity Services Data set 2019-20.

- Explain to a woman that the risk associated with pregnancy continuing beyond 41+0 weeks may increase over time and include:
  - Increased likelihood of caesarean birth *(nulliparous women)*
  - Increased likelihood of the baby needing admission to NICU
  - Increased likelihood of stillbirth and neonatal death *(multips)*

Outcomes (Nulliparous women)	**IOL at 39 weeks**	**IOL 40-42 weeks**
Caesarean	1,860 per 10,000 women	2,220 per 10,000 women
NICU admission	1,170 per 10,000 babies	1,300 per 10,000 babies

Outcomes (Mixed parity)	**IOL at 41 weeks**	**IOL at 42 weeks**
Perinatal death	4 per 10,000 babies	35 per 10,000 babies
NICU admission	300 per 10,000 babies	440 per 10,000 babies

Rate of stillbirth:
41-42 weeks: 1.2-1.27 per 1000 pregnancies
42-43 weeks: 1.3 – 1.9 per 1000 pregnancies
After 43 weeks: 1.53 – 6.3 per 1000 pregnancies
IOL at 41 weeks: 527 inductions required to save 1 perinatal death
IOL at 43 weeks: 195 inductions required to save 1 perinatal death

- Discuss that IOL from 41+0 weeks may reduce these risks, but that they will also need to consider the impact of induction on their birth experience when making their decision (NICE 2021)
- In uncomplicated singleton pregnancies, offer induction of labour from 41+0 weeks after discussion with the Woman and recommend it by 42 weeks – See BRAIN acronym above to assist with counselling. Is risk same for multips and primips? Can we have a chart with this?
- For those that do not wish to be induced discuss:
    - The options from this point (for example expectant management or caesarean section) and record the woman's decision in her notes (NICE 2021)
- For those that do not wish to be induced from 42 weeks explain:
    - Absolute risks on both mother and baby Adverse effects on the baby (including stillbirth) and that these events cannot be predicted or prevented even with monitoring
    - The option of having additional fetal monitoring – twice weekly CTG and USS for liquor volume but that monitoring cannot predict reliably any changes after it ends
- All women who choose not to have IOL:
    - Should be offered the option to discuss their decision again at all subsequent reviews if they wish to do so (NICE 2021)
    - Should be advised to contact their community/continuity midwife or maternity unit if they change their mind
    - Should be advised to contact the maternity unit if they have concerns about their baby
- Be aware of the increased risk of stillbirth in Black and minority ethnic groups, along with those from areas of deprivation

- **Diabetes in pregnancy**

    - The perinatal mortality rate is increased complicated with diabetes which equates to:
        - 16.1 per 1000 births for women with Type 1 DM
        - 22.9 per 1000 births for women with Type 2 DM
    - In women with Type 1 and Type 2 IOL is recommended between 37 – 38+6 weeks. However elective birth should be considered before 37 weeks for those with metabolic or other maternal or fetal complications.
    - Advise women with gestational diabetes to give birth no later than 40 weeks plus 6 days. Offer elective birth by induced labour or (if indicated) by caesarean section to women who have not given birth by this time.
    - Earlier IOL depending on fetal growth, diabetic control and other maternal and fetal complications may be indicated in individual cases and this should be a consultant decision.
    - Please refer to guidelines on diabetes in pregnancy.

- **Multiple pregnancy**

- Current evidence suggests that perinatal mortality increases at term in twin pregnancy compared to singletons.

- In WAHT in uncomplicated diamniotic dichorionic (DCDA) twin pregnancies, vaginal delivery may be considered if the presenting twin is cephalic presentation. IOL should be offered at 37/40.

- IOL for monochorionic diamniotic (MCDA) twin pregnancies can be offered at 36/40 but should be a consultant decision on a case by case basis.

- Monochorionic Monoamniotic (MCMA) twins should be delivered by elective caesarean section at 32/40

- Please refer to the guideline for multiple pregnancies.

- **Pelvic Girdle Dysfunction**

    - SPD/PGD is not a routine indication for induction. The risks of IOL often outweigh the benefits in cases of SPD.

    - However, IOL may be occasionally offered to women in extreme pain who are severely limited in their mobility and this decision will be made on a case-by-case basis – but this should not be offered before 40 weeks gestation.

- **Advanced maternal age**

    - There is evidence that increasing maternal age is independently associated with specific adverse outcomes including perinatal mortality (fetal abnormalities excluded). Increasing maternal age resulting in intrauterine death (IUD) is a continuum rather than threshold effect. Therefore, it is reasonable practice to offer IOL to these women earlier than for younger women.

    - According to large retrospective studies(refernces), risk of fetal intrauterine death increases when maternal age is between 40 and 44 years compared to maternal age being in the twenties

        - Absolute risk of stillbirth of 1:217 aged 25-29 years

        - 1:132 for those ≥ 40 years)

    - Women who are aged 40-44 (at the point of birth) will be counselled by her community midwife and induction of labour offered at 40 weeks gestation (according to her EDD) following a documented discussion of the risks and benefits of IOL and expectant management.

    - Consideration for earlier birth (before 40 weeks) is recommended if maternal age is more than 45 years old at the time of delivery. However, management of each case will be individualised by the consultant team depending on the woman's bishop score, parity and maternal choice and documented in Badgernet.

- **Maternal request**

- Women who request induction of labour for other reasons than prolonged pregnancy should be referred to a Consultant Obstetrician to discuss:
  - Reasons for requesting IOL
  - Risks specific to the woman and fetus
  - Probable outcomes associated with IOL
  - If underlying psychological problems (eg. Tocophobia) refer to Perinatal Mental Health Team
- IOL for maternal request will be considered on a case-by-case basis. After 39 weeks IOL is not associated with an increased risk of caesarean section, instrumental delivery, fetal morbidity or admission to the neonatal unit so the aim should therefore be to try and get all women, wherever possible, to this gestation.
- Ideally, woman requesting IOL should be seen by their named consultant. Women may have to be called back to the clinic to be seen by the consultant if the consultant is not present in the clinic otherwise discuss it with the on-call consultant.

- **History of precipitate labour**
  - IOL should not be offered for a history of precipitate labour.

- **Maternal medical / fetal indications** ○ For different maternal medical/fetal conditions (e.g. PET/All immunisation/ IUGR) IOL may be booked at different gestations by the named consultant. See the guidelines for PET, IUGR and reduced fetal movements.

- **Medical Termination of Pregnancy for Fetal Abnormality or Intrauterine Death** ○ See guideline *"Bereavement Care for management of Women experiencing the loss of a baby"*

- **Premature Rupture of Membranes (<37 weeks gestation)** ○ Refer to guideline Spontaneous rupture of membranes (SROM) NOT in labour after 37+0 and up to 42+0 weeks gestation

- **SROM at term**
  - Refer to guideline - Spontaneous rupture of membranes (SROM) NOT in labour after 37+0 and up to 42+0 weeks gestation,

- **GBS in pregnancy**
  - Refer to guideline - Guideline for the prevention of early-onset neonatal group B streptococcal (EOGBS) disease

- **Reduced fetal movements**
  - Please refer to guidance - Management of Reduced Fetal Movements (RFM).

- **Suspected Large for Gestational Age (macrosomia) without maternal diabetes.**
  - Large for Gestational Age (LGA) babies are defined as a baby over 4000g or over 90th centile (Cochrane 2016).

- If the initial SFH measurement taken between 26-28 weeks is above the 90th centile, this not an indication for a growth scan, and growth within the expected velocity above the 90th centile via the customised growth chart is therefore considered normal.

- A scan would be indicated if there was clinical suspicion of polyhydramnios or there was excessive growth on subsequent measurements.

- Third trimester scanning for fetal weight has a margin of error between 10-15% (up to 20% error) (Perinatal Institute-year) meaning many inductions may not be necessary based on estimated fetal weight (Cochrane 2016) - women must be informed of this error when planning for IOL for LGA to support their informed decisions.

- The optimal timing of IOL is unknown (Cochrane 2016) but there is compelling evidence indicating that early term IOL (37+0 to 38+6) increases the risk of behavioural issues, poorer cognitive development and poorer educational performance in childhood when compared to IOL after 39+0 (Murray et al 2017, Bentley et al 2016).

- A recent randomised controlled trial by Boulvain et al showed (year) that IOL 37-38/40 resulted in a decreased risk of fractures secondary to shoulder dystocia, however there was no difference in rates of severe shoulder dystocia causing long term morbidity/mortality. What does this fracture mean for the neonate

- Women with an suspected LGA baby should be offered the choice of induction of labour, expectant management or caesarean birth after a discussion about the benefits and risks of both options. Discuss:

    - There is evidence showing no difference in the risk of perinatal death, brachial plexus injuries in the baby, or the need for caesarean birth between the 2 options (think this needs to be first in list)
    - There is limited evidence that IOL could reduce the risk of shoulder dystocia
    - (there is evidence that this is increased with IOL-Cochrane 2016)

Outcome	IOL at 39 weeks?	Expectant management
Shoulder dystocia	410 per 10,000 babies	680 per 10,000 babies
Third or fourth degree tear	260 per 10,000 women	69 per 10,000 women

- Information given must be unbiased and free from opinion (NICE 138) – See BRAIN acronym above.

- Women are the central decision makers in their care and discussions about birth timing/planning must include their preferences, wishes and a full, documented discussion of risk/benefit of any alternative treatments/actions (NICE 138).

- IOL for suspected LGA must be agreed at consultant level and the decision must be individualised on a case by case basis.

- **IOL may be offered at 39 weeks unless there are other maternal or obstetric indications.**

    - **Thorough counselling should be offered on identification of an suspected LGA baby as per above (this is a repetition of the risks and benefits above)**

Spontaneous Birth vs Induction of Labour for Suspected LGA at 39 weeks? (Cochrane 2016)

Outcome	Waiting for Spontaneous Labour	Induction of Labour	Overall Outcome
Hypoxia	29:1000	29:1000	No Difference
Any Fracture including clavicle	20:1000	4:1000	16:1000 (0.16%) less babies with IOL. More info on what this means and treatments needs be included or we do not potentiall have full consent (Montgomery vs Lanarkshire)
Shoulder Dystocia	68:1000	41:1000	27:1000 (less with IOL again-link with outcomes-needs context
Brachial Plexus Injury	3:1000	1:1000	No Clear Difference
Perineal Trauma	7:1000	26:1000	19:1000 (1.9%) Higher for Induction of Labour –this is different than above-needs clarification
Low APGAR	5:1000	7:1000	No Clear Difference
C-section	293:1000	267:1000	No Clear Difference
Instrumental Birth	152:1000	130:1000	No Clear Difference

Care of women who decline Induction of Labour

If a woman chooses not to have induction of labour, her decision will be respected. Healthcare professionals will discuss the woman's preferences for care with her and support her to put a plan in place for ongoing care

All women who decline an induction of labour should be escalated to the consultant on call or the Consultant in the antenatal clinic (or ST6 and above if needed) depending where the woman is being reviewed at what gestation-could this not be a clinic appointment if she states this before her EDD? For women who are post-dates this discussion should take place at 42 weeks.

This will enable the consultant to have a detailed discussion with the woman including all risks and benefits as detailed above The discussion should be evidence-based and presented in an unbiased manner. The woman should have time to discuss the information with her partner, be encouraged to look at a variety of sources of information, invited to ask questions and be respected and supported in the decision she makes with a follow up plan made if she declines induction.

If the patient declines attendance to the Maternity Unit this discussion can take place over the phone if necessary**. However, the woman should be strongly encouraged to attend for a face-to-face review and should be reminded that they are able to bring a support partner/advocate with them.**

Regardless of the location of the review, it MUST be documented in full, on Badgernet and it must be clear that the woman understands the risks/benefits of both IOL and declining of IOL how will we know this? **Where a woman chooses not to have induction of labour an individualised plan for maternal and fetal monitoring should be clearly documented in the notes and the rationale for this discussed.**

The woman's pregnancy may continue for some weeks and opportunities should be taken when available to revisit the risks and benefits of IOL with the woman if she chooses, and she should be made aware she can change her mind at any time if she wishes. Care must be taken to ensure that the woman does not feel pressurised into induction by any further discussions that take place.

Likewise, women who have previously accepted induction should be supported in any decision to change their mind but the reasons for this should be explored and necessary follow up arranged in these cases.

Contraindications for Induction of Labour

- Previous uterine rupture
- Vertical uterine incision
- >2 Previous LSCS
- Any other contraindication to vaginal delivery

These women will need to be seen in the Consultant ANC and an individualised management plan agreed and documented. **Place of Induction**

- **Membrane sweeping** – Sweeping of the membranes may be carried out in the women's home or at a clinic.
- **Low Risk induction –** For low risk women IOL using Propess® can be carried out on the antenatal ward or potentially in the outpatient setting. See Outpatient IOL guidance.
- **High Risk women –** For women recognised to be high-risk secondary to maternal or fetal factors. Decision on timing and method of IOL should be made at Consultant level.

Methods of Induction

There are a number of methods of induction of labour, and in reality, many women will experience more than one of these throughout her IOL. Not all of them are suitable for all women however, and an individualised approach must be taken.

All women for induction of labour should be offered membrane sweep prior to IOL.

Vaginal delivery not achieved within 24 hours is a useful benchmark to measure efficacy of the chosen induction method; expert opinion considers this represents a realistic end-point for induction of labour (RCOG, 2008) and a decision for the next option must be discussed with the woman.

Membrane sweeping

- In WAHT women with uncomplicated pregnancies may be offered a membrane sweep at 39 weeks and then IOL 41 weeks. This may be offered both in the community and antenatal clinic setting.
- This may positively influence the transition from maintenance of pregnancy to the onset of labour, reducing the need for formal induction of labour.
- Women should be informed that it may lead to some discomfort and of the possibility of some vaginal bleeding following the procedure and when to seek advice or medical review.

- If a membrane sweep is indicated prior to this gestation to encourage onset of labour, this must be discussed with the Consultant and the benefits and risks must be discussed with the woman and documented.
- Consent will be gained prior to this procedure and the information leaflet 'Membrane Sweep' explaining the procedure will be given to the woman via the Badgernet app. See Membrane Sweep guideline for further information.

Vaginal prostaglandins (dinoprostone - Propess®)

PROPESS® is a vaginal pessary containing 10mgs of Dinoprostone (Prostaglandin E2) presenting as a thin flat rectangular polymeric pessary contained in a knitted polyester retrieval system.

The release rate is approximately 0.3mg per hour over 24 hours in women with intact membranes, release being higher with pre-labour SROM. **Contraindications for use of Propess®**

- When labour has started
- When oxytocic drugs are being given
- A history of hypersensitivity to dinoprostone or the excipients
- When there is current pelvic inflammatory disease, unless adequate prior treatment has been instituted
- Previous upper segment Caesarean section or myomectomy breaching the uterine cavity Fetal malpresentation

Propess® should be used with CAUTION in:

- 1 prior caesarean section
- SROM
- Gestation 34 - 38 weeks
- Grand Multiparity >3
- Multiple pregnancy
- In patients with history of uterine atony, glaucoma or asthma

All non-steroidal anti-inflammatory drugs and aspirin should be stopped the day before administration of dinoprostone (Propess®).

No clinical trials have yet been conducted to confirm the safety/efficacy of Propess® in the above mentioned conditions; therefore Propess® should be used at consultant discretion, after careful counselling of the woman.
Note: Propess® has the advantage of constant, low dose release per hour over 24 hour period, ability to retrieve when required and has a short half-life.

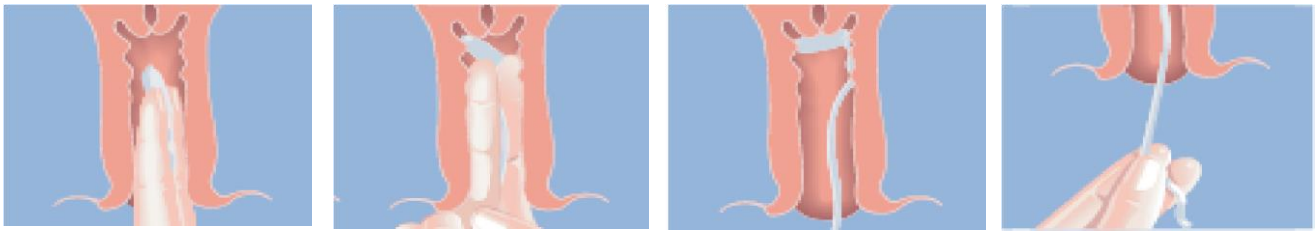
Use of Propess®

Prescribe Propess® pessary 10mg.
Propess® is to be used for the initiation of cervical ripening (See contraindications and use with caution above)

Insertion of Propess®

- Perform abdominal palpation to assess fetal lie, presentation and size.
- Perform vaginal examination and determine Bishop Score.
- Document findings of palpation and VE in notes and sign prescription chart.
- Perform CTG (Dawes Redman) for all women, just prior to inserting the first Propess.
- If there has been a delay between admission/initial CTG and the Propess being inserted, the CTG (Dawes Redman) should be repeated.
- If CTG is reassuring and the criteria met and cervix unfavourable for ARM insert Propess as per instructions below.
- If cervix is favourable transfer to delivery suite for ARM.

The recommended **Propess® administration technique** is described below.



1. Insertion Holding the Propess® insert between the index and middle fingers of the examining hand, insert it high into the vagina towards the posterior vaginal fornix using only small amounts of water soluble lubricants.

2. Positioning The index and middle fingers should now be twisted a quarter turn clockwise, pushing the Propess insert higher up, behind the posterior fornix and turning it through 90º so that it lies transversely in the posterior fornix.

3. After positioning Carefully withdraw the fingers leaving the Propess® insert in the position shown in this diagram where it should remain *in situ*. After insertion ensure that the patient remains recumbent for 20-30 minutes to allow time for the Propess® insert to swell. Again, this will help it to remain in place for the duration of the treatment. Allow sufficient tape to remain outside the vagina to permit easy retrieval.

4. Removal
To stop prostaglandin E2 release, gently pull the retrieval tape and remove the Propess insert.

- If the Propess® insert falls out and has remained clean, i.e. dropped onto clean bed sheets and not dropped on to the floor or into the toilet it may be reinserted and used to the 24 hour limit.

- If it is not possible to re-insert the Propess® due to contamination, a new one may be inserted and used up to 24 hours after the insertion of the first Propess®.

- The excess tape outside the vagina may be cut and removed to prevent accidental removal of the Propess® insert when the patient removes underwear to go to the toilet for example. However, sufficient tape should be left to allow for easy removal when required. The woman should be advised to take extra care not to pull the insert out accidentally when going to the toilet or bathing.

- Experience from clinical trials suggest that dinoprostone release from the Propess® insert is unaffected by bathing or showering. The manufacturer advises against excessive use of soap and care should be taken not to pull the retrieval tape.

Student Midwife Role

Midwifery students in years 2 and 3 can administer prostaglandin under the guidance of a qualified midwife as long as the following criteria have been met, this being;

- The student is found to be competent by their practice supervisor or assessor in vaginal examinations
- Consent is gained by the woman for the midwife to undertake a further vaginal examination post the prostaglandin being inserted by the student midwife to ensure the correct positioning. Thorough documentation to be written in the woman's Badgernet post administration and countersigned by the midwife.
- The student must sign the prescription chart and this is to be counter signed by the supervising midwife

Post Propess® insertion

- Following insertion of the Propess, the fetal heart should be auscultated for 1 minute using a sonic aid to ensure fetal wellbeing. A CTG is not required unless there are additional concerns.
- The woman should then be advised to stay on the bed for 30-45 minutes following insertion and to take caution when visiting the toilet not to pull on the tape.
- Ask the woman to report if she is concerned about displacement of the propess.
- The woman may eat and drink normally and be encouraged to mobilise
- The woman should be observed regularly for any effects of the induction drug e.g., contractions or 'period-like' pain and should be encouraged to report these to a clinician.

A CTG (NOT Dawes Redman) is to be performed if the woman complains of any painful uterine activity or excessive uterine activity at any time – regardless of mode of IOL.
This can be discontinued after 30 minutes if CTG is reassuring *if* there is no evidence of hyperstimulation/tachysystole. If additional measures are required to address the uterine activity, the CTG must be continued until this has settled and fetal wellbeing is assured.

When to remove Propess®

Propess® is designed to remain in the vagina for up to 24 hours; however, it should be removed immediately in the following instances:

- When labour is established
- PV bleeding (not just show)
- Uterine hyperstimulation or hypertonic uterine contractions with CTG abnormalities.
- Evidence of fetal compromise
- At least 30 minutes prior to starting an intravenous infusion of oxytocin
- Following 24 hours, even if labour is not established
- Evidence of maternal systemic adverse dinoprostone effects such as vomiting, hypotension or tachycardia, provided there is no other obvious cause of these signs or symptoms which can be corrected e.g. tachycardia due to dehydration and vomiting following injection of opiates and/or local hypersensitivity reaction.

To remove Propess®, apply gentle traction on the retrieval tape (the insert will have swollen to 2-3 times its original size and be pliable). Document time of removal in Badgernet.

NB: Please make every effort to refrain from removing the pessary unnecessarily.

NB: half-life of Propess is short - around 3 minutes.

24 hours after insertion:

- Remove the Propess® (or ask the woman to if she is agreeable)
- Perform a CTG (Computerised CTG should be used unless there is any uterine activity) for at least 30 minutes
- Perform a VE to assess suitability for ARM
- If suitable for ARM, transfer to Delivery Suite for ARM and/or oxytocin. If there is a delay in being able to perform an ARM, please refer to section 'Management of women awaiting ARM' on page 22.
- Oxytocin can be commenced 30 minutes after removal of Propess®
- If unsuitable for ARM, refer to the management plan formulated on the consultant ward round. If this has not been done arrange for a senior medical review.

Document within Badgernet the date and time of insertion and removal of the Propess®, plus additional findings (VE, maternal observations etc.).

Spontaneous rupture of membranes with Propess® in situ

- Commence CTG (Not Dawes Redman) and assess contractions.
- If there is regular uterine activity, perform a VE to assess if labour is established. If the woman is in established labour remove Propess®.
- If there is no regular uterine activity or labour is not established, do NOT remove pessary, observe and palpate for uterine activity and fetal heart, until either labour does establish or 24 hours has elapsed since insertion
- Maternal observations should be recorded 4 hourly.

1. Mechanical Induction of Labour

This should be offered to all women as an alternative to Propess and routinely performed for all women who have had a previous Caesarean section.

- IOL with a Foley catheter should ideally be performed on delivery suite, where it is easier to place the woman in lithotomy position, prior to transferring to the ward. If however, capacity on Labour Ward does not allow this the balloon can be inserted on the antenatal ward

Mechanical Induction Of Labour for VBAC

- There are and will be an increasing incidence of women with previous Caesareans presenting to us for care in pregnancy. The risks in each woman have to be assessed and care individualised based on the clinical circumstances and the choices of the woman.
- Given the increased risks of scar rupture with prostaglandin use there is a move towards using mechanical methods for induction of these women.
- At present there is robust evidence to show that there is no difference between the uses of either of these products (balloon or prostaglandins) ***in their ability*** to dilate the cervix so that an artificial rupture of the membranes can be achieved. In addition the cervical balloon catheter is as efficacious in achieving vaginal delivery as the use of vaginal prostaglandins.
- There is limited evidence available for the safety and efficacy of induction of labour in this group. However it would appear that rates of successful VBAC similar to those for spontaneous labour may be achieved.
- The risk of uterine scar rupture is however greater and women who have never delivered vaginally are at the highest risk from uterine rupture following IOL.
- Timing and method of induction of labour should be decided at consultant level and documented carefully on Badgernet.
- Risks and benefits of IOL should be discussed with the woman and the plan should be documented on Badgernet along with her preferences (e.g. if not for Foley Catheter/Oxytocin etc.).
- IOL should ideally be performed with a Foleys balloon catheter as this carries a lower risk of uterine rupture (2.9/1000 vs 8.7/1000 with prostaglandin).
- Propess **should not** be used in women who have had a previous caesarean section (NICE 2021).
- If cervix is favourable for amniotomy (ARM) it should be performed and if no progress or lack of uterine contractions after two hours' oxytocin should be commenced.
- Please refer to 'Induction of Labour – Previous Caesarean VBAC with Foleys Catheter' and the 'Vaginal Birth after Caesarean Section' Guidelines.

Maternal and fetal observations during IOL

Regardless of mode of induction, all women should be monitored for maternal and fetal wellbeing. IOL is an intervention, and as such carries a risk, though it is small.

Prior to established labour - Maternal observations:

- Maternal observations that should be carried out during induction prior to established labour include BP, temperature and maternal pulse.

- These observations should be checked at least once per shift (ie. 3 times per day). The frequency of observations will depend upon clinical condition of the woman.

Prior to established labour - Fetal observations:

- There is limited evidence as to the most appropriate protocol for fetal monitoring following vaginal prostaglandin administration in low risk pregnancies.

- However, NICE recommends that fetal wellbeing should be assessed with continuous electronic fetal monitoring when contractions begin after administration of vaginal prostaglandin. This should not be a Dawes Redman CTG.

- Once the CTG is confirmed as normal intermittent auscultation should be used unless there are clear indications for continuous electronic fetal monitoring (i.e.. Additional risk factors).

All women must have a pre-Propess/balloon CTG (Dawes Redman) – if this is normal, they are then suitable for 4 hourly fetal auscultation (including overnight) until/unless the woman goes into labour in addition to the CTG monitoring detailed below:

Daily CTG	Twice daily CTG
Routine post-dates	Growth <10th centile/Static growth on USS
Diet control GDM with normal size baby	Preterm <37/40
Maternal request	Elevated PI but normal EDF
Pelvic girdle dysfunction	Reduced fetal movements
Large for dates	PET/PIH
Polyhydramnios	SROM <37/40
Maternal Age	Oligohydramnios
	DCDA twins
	Diabetics on metformin or insulin
	Obstetric Cholestasis
	History of Antepartum haemorrhage resulting in decision for IOL– not actively bleeding

Please bear in mind, Dawes-Redman analysis is NOT suitable for women in labour/suspected labour. It can be used prior to insertion of the first Propess but is not appropriate for any subsequent CTGs performed during the induction process.

High risk women:

Most women undergoing IOL with any obstetric or medical risk factor should be managed in the antenatal ward.

Only women with need for intensive fetal or maternal monitoring need to be admitted to delivery suite for induction of labour e.g. unstable pre-eclamptic women, grossly abnormal fetal dopplers i.e. absent or reversed EDF, possible maternal or fetal sepsis or, if capacity allows, those having insertion of a Foley catheter balloon (once inserted the woman can return to ANW).

The woman should be instructed to inform the midwife if:

- Contractions become regular (every 5 minutes or more frequent)
- She becomes uncomfortable with contractions
- She has bleeding
- Membranes rupture
- Propess falls out or drops lower in the vagina
- The catheter balloon falls out

The occasional undesirable effects seen have been those normally associated with intravaginal dinoprostone administration. Gastrointestinal effects such as nausea, vomiting and diarrhoea have been reported – if these occur, the woman should be reviewed by the Obstetric team and appropriate treatment provided.

Recommendations on unsuccessful induction of labour after 24 hours

Currently Propess® is not licensed to be repeated as a second dose. However, there is a consensus that in carefully selected women the dose may be repeated but only after review of the case by senior obstetric clinician and in full discussion with the woman.

All women with their first Propess in situ should be counselled on the Consultant ward round about management options if ARM is not possible after the first dose. A full assessment should be made of the pregnancy in general, the woman's well-being and the fetal well-being assessed with EFM as per guidance below.

Her preferences for continuing with the induction of labour process and alternatives should be discussed. The ongoing management plan following removal of the first Propess should be clearly documented on Badgernet following these discussions.

If a management plan has not been made on the ward round the case should be discussed with a senior obstetrician if an ARM is not possible.

Options include:

- Second Propess - If a management plan has been made by the senior obstetric clinician that this is appropriate, after careful review of the case and discussion with the woman, this can be inserted by a midwife.
- Caesarean delivery. If this cannot be performed within 24 hours and the woman is in agreement, a repeat vaginal examination prior to the operation should be performed in case there have been significant changes.

- Mechanical induction

Management of women awaiting ARM

- If suitable for ARM, transfer to Delivery Suite for ARM and/or oxytocin. If there is a delay in being able to perform an ARM please
- Refer to Appendix A 'RAG prioritisation' to prioritise the women waiting
- Refer to the escalation policy
- Notify the Labour Ward Co-ordinator and 223 bleep holder. The possibility of transfer to Hereford may be an option for some women following discussion at the Digital Safety Huddle.
- Offer the woman the option of going home to await an ARM. **This should be made after discussion with the senior obstetric clinician on a case by case basis with a particular emphasis on indication for induction, fetal movements and admission CTGs.** The woman should be advised to attend DAU daily, and an appointment for the next day booked prior to discharge. At the DAU appointment a full assessment of maternal and fetal well-being should be performed including a CTG/obs/offer sweep if appropriate and an updated management plan made. The DAU staff should liaise with the 223-bleep holder at each appointment to ensure woman is on the ARM list. **The on-call Senior obstetric clinician should be notified of any newly identified issues and any woman who has been waiting for more than 24 hours**.

- The ARM list should be reviewed daily by the senior Obstetrician and discussed with the Consultant Obstetrician as part of the ward round.

    - Submit a Datix for those women waiting >24 hours

Management of Hyperstimulation

- Tachysystole≥ 5 contractions in 10 minutes with normal CTG
- Hypertonus = painful contraction lasting ≥ 90 seconds with normal CTG
- Hyperstimulation = tachysystole or hypertonus with abnormal CTG

If any hyperstimulation is suspected CTG monitoring should be commenced immediately.

The shift coordinator/ obstetric registrar must be informed.

If the woman is NOT in established labour and the fetal heart is normal DO NOT remove pessary, CTG (Not Dawes Redman) should be continued as long as there is evidence of uterine hyperstimulation – do NOT turn it off.

If CTG is suspicious or pathological the Propess® should be removed and the registrar requested to attend immediately.

Terbutaline 250 micrograms s/c maybe considered, however due to the short half-life of dinoprostone and the low dose released per hour, the hyperstimulation should resolve spontaneously in 15–20 minutes – **however, do not wait if there is fetal distress – the terbutaline should be given if needed.**

Terbutaline is contraindicated in:

- Placental abruption
- APH
- cord compression
- eclampsia
- history of cardiac disease
- IUD
- intra-uterine infection
- placenta praevia (in adults)
- pulmonary hypertension
- severe pre-eclampsia
- significant risk factors for myocardial ischaemia
- threatened miscarriage

Terbutaline should be used in caution in:

- Arrhythmias
- Cardiovascular disease
- Diabetes (risk of hyperglycaemia and ketoacidosis)
- Hypertension
- Hyperthyroidism
- Hypokalaemia
- Susceptibility to QT-interval prolongation

If the CTG improves following removal of Propess® wait at least 30 minutes and then perform a vaginal examination, attempt to perform an ARM (following transfer to Delivery Suite) and consider augmentation with oxytocin. However care must be taken as any ARM performed may result in further hyperstimulation and fetal compromise.

If an ARM is not possible and the CTG normalises the case must be discussed with the consultant on call regarding further management options. Consideration could be given to a further Propess after thorough counselling.

Oxytocin for induction or augmentation of labour

One of the common reasons in unsuccessful IOL is irregularities in increasing the oxytocin dose.

Oxytocin performance optimised with ruptured membranes

Once oxytocin is commenced the protocol (see below) should be strictly followed as undue delay in increasing the oxytocin dose renders it less effective and results in unsuccessful induction.

Oxytocin should only be discontinued for definite indications e.g. abnormal/ pathological CTG or hypertonic uterine contractions.

It is recommended that maternal assessment including vaginal examinations is carried out prior to commencement of Oxytocin and fetal monitoring should be by EFM during the use of oxytocin. Maternal assessment should include BP, pulse, temperature and abdominal palpation.

The individual management plan about the decision to commence Oxytocin should be documented on Badgernet when Oxytocin commences.

Points to note:

- **Milliunits per minute *not*** Millilitres per minute
- 1 millilitres/hr = 1 milliunits/min
- 6 units of oxytocin (Syntocinon) should be mixed with 50mls 0.9% sodium chloride
- Deliver via either syringe pump or infusion pump with non-return valve
- **The dose should be increased every 30minutes until 4 regular contractions in 10minutes are evident.**
- **Continuous electronic fetal monitoring is required for the duration of the use of oxytocin.**
- **If a woman requires an epidural and oxytocin is in progress, consider the use of FSE if an accurate CTG trace cannot be achieved – it is NOT appropriate to have no fetal monitoring with oxytocin running for any length of time.**

Oxytocin dosing regime:

Time after starting (Mins)	Pump Setting (mls/hr)	Dose (milliunits)
0	0.5	1 Milliunits/min
30	1.0	2 Milliunits /min
60	2.0	4 Milliunits /min
90	4.0	8 Milliunits /min
120	6.0	12 Milliunits /min
150	8.0	16 Milliunits /min
180	10.0	20 Milliunits /min

When should oxytocin be stopped?

- If the CTG is non-reassuring, the clinical situation, including maternal and fetal observations, should be reviewed to assist in decision making with regards to oxytocin augmentation/incrementation. Consider changing maternal position.

- If CTG is pathological the registrar should review the clinical situation, including maternal and fetal observations. It may be necessary to undertake Fetal Blood sampling or even stop the oxytocin.

- If CTG is pathological in context of hyperstimulation, **stop oxytocin** and inform the registrar/coordinator immediately. Terbutaline 250 micrograms s/c should be considered, however due to the short half-life of oxytocin, the hyperstimulation should resolve spontaneously in 15 – 20 minutes.

- If the CTG improves following tocolysis/stopping oxytocin the clinical situation, including maternal and fetal observations, should be reviewed to assist in decision making with regards to whether it is appropriate to recommence oxytocin

Appendix A. RAG rating for IOL prioritisation if there are capacity issues

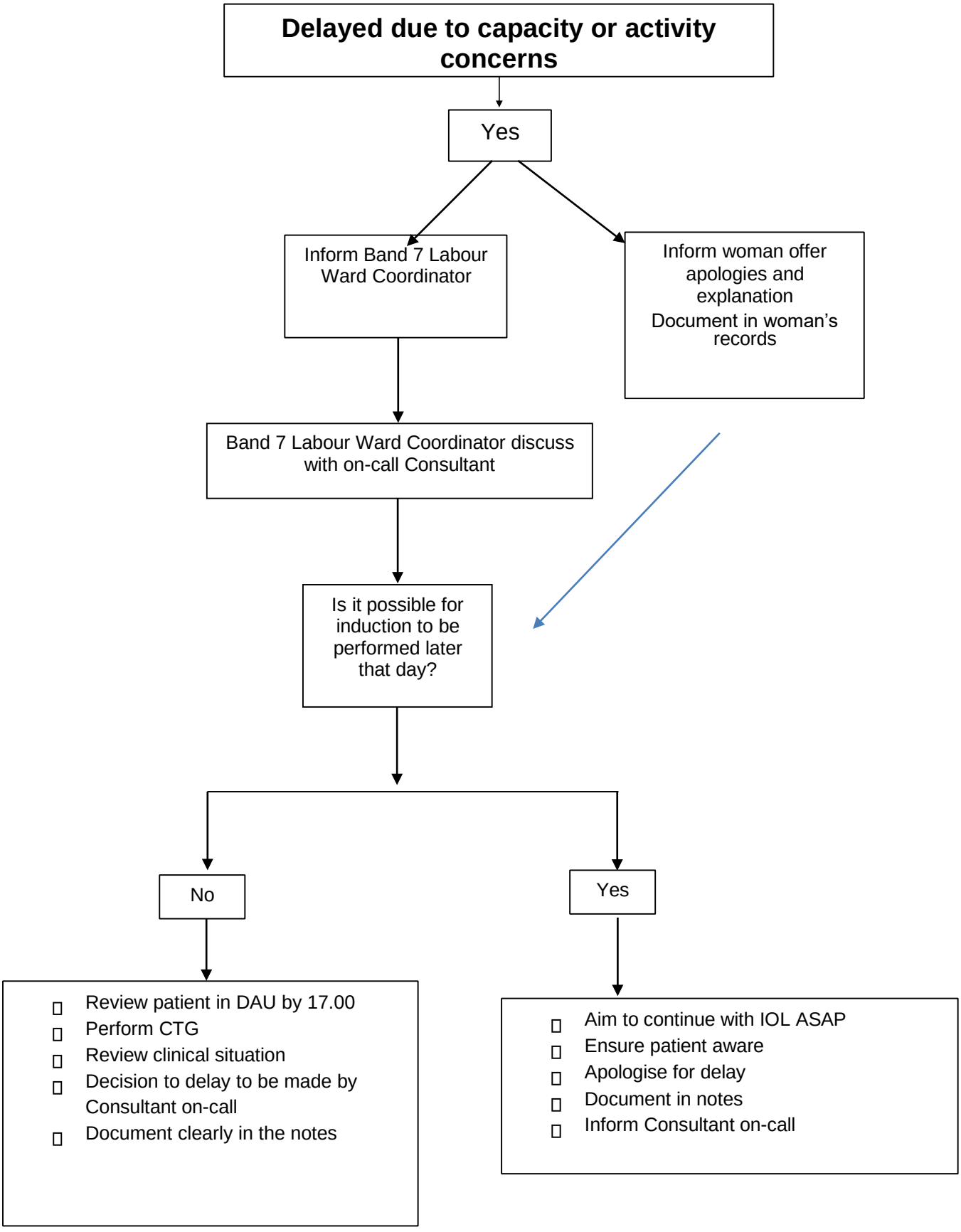
Reason for IOL/Admission	RAG rating
Steroid administration (prior to CS)	
Maternal request	
Post maturity >T+7	
Constellation of bias/multiple factors	
PGP/Musculoskeletal disorders	
IVF pregnancy	
Maternal age	
Low PAPPA with normal growth velocity 40/40	
Late booker/unsure of dates	
SRM>24 hrs	
PPROM>37/40 – no evidence of infection	
APH>39/40	
Recurrent APH 37-39	
SGA - < or on 3rd centile	
SGA >3rd - <10th centile	
Reduction in AC velocity / crossing centiles	
Oligohydramnios	
Abnormal Doppler's	
Polyhydramnios 8-15cm	
Polyhydramnios >15cm	
LGA (EFW>90th centile) w/o diabetes	
Type 1 or 2 DM	
GDM diet controlled with no additional concerns	
GIDM - normal growth LV and FM	
GDM on metformin - normal growth LV and FM	
DM – with reducing insulin requirements	
OC	
Maternal medicine patients - see individualised plan	
Thrombophilia	
Poor obstetric history	
PIH	
PET	
Multiple pregnancy	
Fetal anomaly	
DFM	
More than 1 reason	
Any patient where IOL is delayed or has waited for ARM>24hrs	

This list is not exhaustive and requires decision makers to employ clinical judgement. All decisions re: moving/delaying IOL/admission must be finalised by senior decision maker.

Order of priority if capacity issues

This list is not exhaustive and requires decision makers to employ clinical judgement. If obstetric decision maker.

Appendix B. Algorithm for management of delay



Worcestershire Acute Hospitals NHS Trust

Monitoring

Page/ Section of Key Document	Key control:	Checks to be carried out to confirm compliance with the Policy:	How often the check will be carried out:	Responsible for carrying out the check:	Results of check reported to: *(Responsible for also ensuring actions are developed to address any areas of non-compliance)*	Frequency of reporting:
	WHAT?	**HOW?**	**WHEN?**	**WHO?**	**WHERE?**	**WHEN?**
	These are the 'key' parts of the process that we are relying on to manage risk. We may not be able to monitor every part of the process, but we MUST monitor the key elements, otherwise we won't know whether we are keeping patients, visitors and/or staff safe.	What are we going to do to make sure the key parts of the process we have identified are being followed? (Some techniques to consider are; audits, spot-checks, analysis of incident trends, monitoring of attendance at training.)	Be realistic. Set achievable frequencies. Use terms such as '10 times a year' instead of 'monthly'.	Who is responsible for the check? Is it listed in the 'duties' section of the Policy? Is it in the job description?	Who will receive the monitoring results? Where this is a committee the committee's specific responsibility for monitoring the process must be described within its terms of reference.	Use terms such as '10 times a year' instead of 'monthly'.

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6. National Institute for Health and Care Excellence. (2012). Patient experience in adult NHS services: improving the experience of care for people using adult NHS services (NICE guideline NG138).

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10. Saving Babies' Lives Care Bundle Version Two. A care bundle for reducing perinatal mortality. Available from: https://www.england.nhs.uk/wphttps://www.england.nhs.uk/wp-content/uploads/2019/07/saving-babies-lives-care-bundle-version-two-v5.pdfcontent/uploads/2019/07/saving-babies-lives-care-bundle-version-two-v5.pdf.

11. Spontaneous rupture of membranes (SROM) NOT in labour after 37+0 and up to 42+0 weeks' gestation – Local Guideline