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Introduction

Induction of labour (IOL) is an obstetric intervention and is the initiation of labour by artificial means. IOL can increase risks of intrapartum complications in some women and may place workload pressures on the delivery unit. Thus, it is only justified when there is greater benefit to the health of the mother and/or baby than if the pregnancy continues. Treatment and care should consider women's individual needs and preferences.

This guideline is to describe the management of induction of labour (IOL) by dinoprostone vaginal tablet(s) (Prostin®), dinoprostone vaginal insert (Propess®) and cervical ripening balloon (CRB). Unless there are specific circumstances where it should not be used as a first line agent (e.g. previous caesarean section, severe asthma), prostaglandins should be used to induce labour.

1. Information and decision making

Women who are having or being offered IOL should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals.

Women can decide to proceed with, delay, decline or stop an induction. Respect the woman's decision, even if healthcare professionals disagree with it, and do not allow personal views to influence the care they are given.

1.1 Information should cover the following:

- The indication for IOL (risks/benefits of not being induced)
- Where, when and how induction can be carried out
- Arrangements for support and visiting times of birth partners
- Risks and benefits of the chosen methods of induction of labour as outlined by this policy must be relayed prior to induction. Methods of pain relief should also be discussed (see local guidance / RCOG)
- Outpatient IOL, where appropriate, should be offered as 1st line method of IOL
- The alternative options if the woman chooses not to have IOL i.e. expectant management or caesarean section. When a woman declines IOL an individual management plan should be developed to address further management; including offering daily CTG monitoring, and this must be clearly documented in the maternal notes. She should be given advice regarding who to contact should she change her mind
- An explanation that IOL may not be successful and the subsequent options that would be available to her at that point. It should be discussed that IOL can be a lengthy process and that waiting for artificial rupture of membranes once that is deemed as the next step may be >24 hours.

1.2 Contraindications to IOL:

- Previous classical caesarean section/hysterotomy
- Previous uterine surgery where the myometrium (muscular outer later of uterus) was opened into the endometrial cavity (inner tissue of uterus).
- Breech presentation
- Absent/reversed fetal umbilical artery Doppler (Consultant plan re mode of delivery)
- Transverse/oblique lie
- Active primary Herpes Simplex Virus (HSV) / primary HSV diagnosed within 6 weeks of IOL
- Invasive cervical cancer
- Severe pelvic structural abnormalities
- Placenta/vasa praevia

2. Preceding IOL

2.1 Membrane Sweeping

- Membrane sweeping involves the examining finger passing through the cervix to rotate against the wall of the uterus, to separate the chorionic membrane from the decidua
- Women should be informed that a membrane sweep makes spontaneous labour more likely and reduces the need for formal IOL
- Prior to performing a membrane sweep, healthcare professionals should confirm an accurate estimated date delivery (EDD) from the dating scan (accuracy best calculated from Crown Rump Length (CRL) until 13+6 weeks gestation). They should also check the placental site following the anomaly scan
- Discomfort and light vaginal bleeding may occur during/ following the procedure, however if there are concerns to the amount of pain and or bleeding the woman should contact the maternity triage department
- Women with an uncomplicated post mature pregnancy (40 – 41 weeks) should be offered a membrane sweep with the community midwife prior to commencement of IOL, this should be performed at:
    - 40- and 41-week antenatal visit for nulliparous women
    - 41 weeks for parous women
- In some circumstances, following medical review in antenatal clinic it may be appropriate to offer induction of labour earlier. If there is clear documentation by a consultant obstetrician in the maternity notes, midwives can perform membrane sweeps from 37 weeks gestation, preceding planned IOL
- Examination findings of cervical assessment (Bishop Score – See Appendix 1) and whether a membrane sweep has been successfully performed should be recorded accurately in the maternity record.

- Prior to a membrane sweep an abdominal palpation should be undertaken to assess fetal lie and presentation. Following a membrane sweep the fetal heart rate should be auscultated for 1 minute.
- Membrane sweep is an acceptable means of reducing the need for induction of labour in individuals with a scarred uterus where attempted vaginal birth is deemed safe

3. Induction of Labour (IOL) in specific circumstances

3.1 Prolonged Pregnancy

3.1.1 Women with uncomplicated pregnancies should be offered IOL from 41 weeks to 42 weeks (NICE 2008) to avoid the risks of prolonged pregnancy (increased perinatal mortality and morbidity including stillbirth). The exact timing should consider the woman's preferences and local circumstances. Currently at MFT, post mature IOL is offered at T+12.

3.1.2 Women who decline induction of labour at T+12 should be offered increased antenatal monitoring consisting of twice weekly CTG and an ultrasound scan for growth and liquor volume (LV) (NICE 2008). If undelivered, a further scan for LV should be undertaken one week later. The woman should be informed that there is no evidence that such monitoring will reduce the risk of late stillbirth and neonatal morbidity.

3.1.3 Explain to women that some risks associated with a pregnancy continuing beyond 41+0 weeks may increase over time and these include

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

3.1.4 Be aware that, according to the 2020 MBRRACE-UK report on perinatal mortality, women from some minority ethnic backgrounds or who live in deprived areas have an increased risk of stillbirth and may benefit from closer monitoring and additional support. The report showed that across all births (not just those induced):

- compared with white babies (34/10,000), the stillbirth rate is
  - more than twice as high in black babies (74/10,000)
  - around 50% higher in Asian babies (53/10,000)
- the stillbirth rate increases according to the level of deprivation in the area the mother lives in, with almost twice as many stillbirths for women living in the most deprived areas (47/10,000) compared with the least deprived areas (26/10,000).

3.2 Maternal Request

3.2.1 Ideally, IOL should not routinely be performed for maternal request alone. However, in circumstances where this is deemed appropriate women should be encouraged to have IOL after 39 weeks gestation[3].

The risks of failure and subsequent management including caesarean section should be reiterated at the time of booking.

3.3 Fetal Growth Restriction

3.3.1 Prostin®, Propess® or a cervical ripening balloon can be utilised in the IOL for fetal growth restriction. If there are any regular contractions (2 in 10 minutes or more) during the IOL process continuous monitoring should be utilised. If there is evidence of severe fetal compromise IOL should not be performed and caesarean section offered first line (abnormal antenatal CTG, absent or reversed umbilical artery Doppler flow).
Refer to regional *Fetal Growth Restriction* guideline for timing of delivery.

3.4 Maternal Diabetes

3.4.1 The decision for IOL for women with maternal diabetes should be made by the obstetrician in consultation with the woman, considering the woman's glycaemic control, hypoglycaemic agent usage, maternal and fetal well-being.
See also *Management of Gestational Diabetes Mellitus (GDM)* and *Management of antenatal, intrapartum and postnatal care for women with pre-existing diabetes* guidelines.

3.5 Fetal Macrosomia

3.5.1 Options include expectant management, IOL at or after 39 weeks and caesarean section depending on individual clinical circumstances and patient preference. **An LGA proforma detailing risks / benefits should be completed in HIVE**.
See also *Large for gestational age* guideline.

3.6 Polyhydramnios

3.6.1 There is some evidence of an increase in perinatal mortality in unexplained polyhydramnios (Magann et al, 2007) and as such if polyhydramnios is persistent then IOL should be offered from 40 weeks gestation.
See also *Polyhydramnios; investigations and management* guideline.

3.7 Reduced Fetal Movements

See *Reduced Fetal Movements* guideline.

3.8 Advanced Maternal Age

3.8.1 The overall incidence of stillbirth is still low in women of advanced maternal age ≥40years (2:1000 at 39-40 weeks) but it is increased

compared to women ≤35 years (1:1000)[4]. Thus, IOL in these women should be offered after 39+0 weeks after careful counselling of the risks and benefits of IOL including the risk of failed IOL.

3.9 Intrauterine Death

See *Stillbirth: guideline for the management of women whose baby is stillborn (≥24 weeks gestation)* guideline and Integrated Care Pathway (ICP).

3.10 Pre-labour Rupture of Membranes

3.10.1 Term (≥ 37 weeks)

Women with pre-labour rupture of membranes at term (at or over 37 weeks) should be offered a choice of expectant management (24 hours) or IOL as soon as feasible.

See guideline: *Pre-labour Spontaneous Rupture of Membranes (SROM) at Term (>37 weeks)* and ensure the following proforma is completed in HIVE: **Counselling proforma for women attending with prelabour rupture of membranes (ROM) (which has been confirmed) at Term**

3.10.2 Preterm (≤ 37 weeks)

See guideline*: Pre-labour Rupture of Membranes (PROM) before 37 weeks.*

3.11 Previous Lower Segment Caesarean Section (LSCS), myomectomy or other significant uterine surgery

3.11.1 Cervical Ripening Balloon (CRB)

Women with 1 previous uncomplicated lower segment caesarean section should be counselled appropriately regarding vaginal birth after caesarean section (VBAC) or a repeat caesarean section. This should be done by an Obstetrician (ST3 or above) and **VBAC proforma completed and filed in the medical notes.**

The surgical details of prior uterine surgeries other than lower segment caesarean section (e.g. myomectomies, cornual ectopic surgery, uterine septum surgery) should be reviewed to determine the safety of attempting vaginal birth.

Where attempted vaginal birth after uterine surgery has been deemed appropriate/is being considered outside of guidance, women should be counselled appropriately. There is a lack of evidence with which to quantify risk of uterine rupture in induced labour after myomectomy. However, the baseline risk of rupture during labour after myomectomy (0.9%) is already significantly higher than that with caesarean section (Gambacorti-passerini et al, 2016).

The increased risks of caesarean section, uterine rupture and perinatal and maternal morbidity should be discussed and documented. Women should be made aware that the use of intravenous (IV) oxytocin increases the risk of uterine rupture further.

Prostaglandins should not be used for IOL in the presence of a uterine scar, with the exception of careful use where benefits are considered to outweigh risks in the case of fetal death *in utero* / medical termination of pregnancy. In these cases, uterine activity must be carefully monitored and hyperstimulation avoided.

Women with a scarred uterus are not suitable for outpatient induction of labour (with or without prostaglandin use) but may be suitable to await ARM at home where this is not immediately possible to facilitate; assessment should be made on a case-by-case basis.

See guidelines: *Management of women wishing to have vaginal birth after Caesarean section (VBAC) and those with a previous scarred uterus, Management of Second Trimester Pregnancy Loss, Stillbirth: guideline for the management of women whose baby is stillborn (≥24 weeks gestation), and Medical termination of pregnancy in the second and third trimester.*

4. Process of IOL

4.1 Booking IOL

4.1.1 All inductions, apart from those for post-maturity should be discussed and approved by a consultant obstetrician

4.1.2 The indication and consultant approval should be documented clearly in both the antenatal records in HIVE.

4.1.3 See *Appendix 2 and Appendix 2a* for booking information

4.1.4 If there are no available slots on your selected day and ward, you **must** check what the availability is at the other MCS sites and discuss this option with the patient. If booking an induction on another site, only use the available slots, please do not overbook.

4.1.5 The woman must be informed of the date and time of IOL at the time of booking and given the details via My MFT (if available to the patient) or full written details. Contact details of the ward they will be attending must be given

4.1.6 Ensure the woman has been signposted to the relevant patient information leaflet / website

4.1.7 Prescribe the appropriate vaginal prostaglandin (Prostin 3mg (3 doses) or Propess 10mg) and analgesia (paracetamol and dihydrocodeine) after excluding any allergies or contraindications

4.1.8 A risk assessment should be carried out to determine the most appropriate place for IOL to be started. Risks associated with IOL should be determined using the scoring system in the table below

4.2 Determining place of IOL

Moderate Risk Factor	Score = 1 for each	Severe Risk Factor	Score = 3 for each
Grandmultiparity ≥5		Any conditions that require additional maternal monitoring For example: • Severe pre-eclampsia • Significant APH • Sepsis • Severe asthma • Specialist clinic care plan stating IOL on delivery unit	
Antepartum haemorrhage (APH)		Gestation ≤ 35 weeks Between 35-36 weeks location at consultant discretion	
Fetal Growth Restriction (FGR)		FGR with absent / reversed EDF	
Oligohydramnios			
Raised umbilical artery PI			
Previous uterine scar		ORC and NMGH: Fetal death in utero (FDIU) >16 weeks Saint Mary's at Wythenshawe: 16-19+6 weeks: C3 ≥ 20/40 delivery unit	

- All inductions with the exception of those scoring ≥ 3 should be induced on to the antenatal ward.
- **Women scoring > 3 should be induced on the delivery unit**
- If a member of staff is uncertain as to the planned location of IOL, they should ask the woman's named consultant / ward cover consultant / consultant on call

4.3 Risk Assessment Prior to Commencing IOL

Initial Assessment:

- Confirm indication for IOL
- Confirm gestational age against 1st USS
- Confirm appropriate location to commence IOL as per section 4.2
- For women under the care of specialist clinics: confirm individual care plan
- Assess whether a neonatal cot is required and if so, inform the neonatal unit (NICU/NNU) of the patient
- Ensure there are no contraindications to IOL with Prostin, Propess or CRB
- Complete the admission on HIVE
- Maternal observations (MEOWS) are to be performed on admission and documented on the flowsheets in HIVE
- For low-risk women MEOWS should be repeated once daily as a minimum
- For high-risk women MEOWS should be repeated 4-6 hourly unless otherwise clinically indicated or documentation by an obstetrician
- If there is a change on the woman's clinical condition e.g. contractions/ tightening's or maternal observations (MEOWS) during the induction prior to established labour a CTG must be commenced. An obstetrician should be informed if the CTG or maternal observations are abnormal. See guideline: *Modified Obstetric Early Warning Score (MEOWS)*.

5. Methods of IOL

These can be divided into:

- Pharmacological
- Cervical ripening balloon (CRB)
- Amniotomy

5.1 Pharmacological methods

The preferred method of induction involves the use of vaginal prostaglandin (dinoprostone) (NICE 2008). This can either be administered as a vaginal tablet (Prostin) or a slow-release pessary (Propess).

What is Prostin?

Prostin is dinoprostone vaginal tablet/gel that can be inserted into the vagina every six hours to a maximum of three doses.

What is Propess?

Propess is a slow-release prostaglandin (dinoprostone, prostaglandin E2) delivery system. It is inserted vaginally into the posterior fornix and remains in situ for up to 24 hours. See *Appendix 3* for information on insertion of Propess.

See **table 1** at the end of this guideline: Guide to using Propess / Prostin.

Any maternal or fetal parameters which do not follow the standard IOL guidelines may affect the location, decision or method to induce and must be discussed with the woman's own consultant or designated substitute consultant.

Administration

Doctors and midwives who have received the appropriate training can administer Prostin / Propess.
A midwife can give Propess and Prostin after 37 weeks gestation. Any midwife who has only received the theoretical training can administer Prostin or Propess under either the supervision of a midwife trained in induction procedures or an ST3 doctor or above.

Prostin vaginal tablets

Prostin vaginal tablets are given every 6 hours at a dose of 3mg each (irrespective of parity) up to a maximum of three doses. As soon as an ARM is possible (cervix 1cm dilated or more) women should be added to the ARM transfer list and not given further prostaglandins / offered a rest day, unless specified by an obstetrician.

General guidance on prostaglandin administration

- Tightening / contracting - "Prostin pains" are a common side effect of prostaglandin administration.
- Oral analgesia and TENS can be employed after maternal and fetal assessment. The effectiveness of the analgesia should be reviewed shortly after administration and consideration of additional fetal monitoring depending on risk factors. If additional pain relief is required a medical review should take place.
- The presence of regular, painful contractions/uterine activity is a relative contraindication to prostaglandin administration. If at the point of assessment there are regular painful contractions discuss with an obstetrician (ST3 or above) as delayed administration and reassessment in 2 hours or an ARM may be more appropriate.

- If there is no longer regular painful uterine activity after 2 hours and an ARM cannot be performed prostaglandin may be administered if indicated as above.
- If regular painful uterine activity persists, assessment of cervical change must be made to diagnose onset of labour and/or to assess the need and favourability for an ARM. If in doubt, discuss with obstetric staff (ST3 or above)
- The decision regarding a third dose of Prostin, if the woman is still not suitable for ARM, must be discussed with a registrar (ST3 or above) and/or consultant as to the appropriateness of administration of the third Prostin.
- If ARM is possible, transfer to the delivery unit should be arranged as soon as feasible.

5.2 Cervical ripening balloon (CRB)

The cervical ripening balloon (CRB) is a silicone double balloon catheter. It encourages gradual cervical dilatation by gentle and constant pressure on the cervix. It can be used for induction of labour at term when the cervix is unfavourable for ARM. For instructions on use refer to *Appendix 4*.
A CRB is indicated in non-labouring women at term with a singleton pregnancy, longitudinal lie, cephalic presentation, intact membranes, with an indication for induction of labour and no contraindications.

Indications for CRB

- Women with one previous lower segment CS where ARM is not possible
- Women with previous myomectomy deemed suitable for trial of vaginal birth where ARM is not possible
- Women with a FDIU where misoprostol has failed or with a previous CS
- Women where Propess and/or Prostin has failed (Consultant decision)
- Women who are para 4 or more

Contraindications for CRB

- Polyhydramnios
- Previous hysterotomy/ classical caesarean section / cervical tear / myomectomy breaching uterine cavity
- Presenting part above pelvic inlet
- Pelvic structural abnormality
- Multiple pregnancy
- Pre labour rupture of membranes
- Any contraindication to IOL
- Severe maternal hypertension
- Unstable maternal cardiac disease
- Use of Propess / Prostin is excluded when CRB is in situ

5.3 Amniotomy (ARM) and Intravenous Oxytocin

5.3.1 ARM and/or IV Oxytocin may be needed to initiate or sustain the induction process. This should not be used as a primary method alone unless there are specific clinical reasons for not using prostaglandin either because contradicted or not optimal (e.g. severe asthma, previous caesarean section, perceived increased risk of uterine hyperstimulation).

5.3.2 In the event of a high presenting part the plan of care should be discussed with an ST3 or above or Consultant obstetrician prior to ARM due to the increased risk of cord prolapse.

Exceptions in which IV oxytocin would be used as first line are as follows:

- Women with SROM and evidence of chorioamnionitis
- Women with SROM, with a cervix ≥3cm dilated and not contracting regularly
- Women with Group B Streptococcus with pre-labour SROM with a favourable Bishop score. Women with an unfavourable cervical assessment may benefit from a single 3mg dose of vaginal Prostin prior to oxytocin use. Remember that oxytocin cannot be commenced within 6 hours of prostaglandin administration.
- Intravenous oxytocin for IOL and augmentation will be discussed in more detail below in section 12 of this guideline

6. Fetal Observations during IOL

6.1 A CTG should be performed and interpreted using Dawes Redman (DR) criteria prior to the administration of, where applicable, the **first** Prostin or Propess or a CRB. Either use a CTG classification sticker or classify on K2 where available. There is no need to wait for a full 20 minutes if the CTG has met DR criteria **and** is visually reassuring.

6.2 If the midwife is unsure with regard to the Dawes Redman/CTG findings, obtain a second opinion from a senior midwife or obstetrician (ST3 or above). If there is any doubt as to whether to proceed with the IOL, contact the obstetric registrar or Consultant.
See *Antenatal CTG Interpretation* guideline.

6.3 Following the administration of Prostin® or Propess® or a CRB the CTG must remain in progress for a minimum of 30 minutes before being discontinued and should only be discontinued if normal (all 4 features reassuring). If a midwife is unsure, obtain a second opinion from a registrar (ST3 or above) or Consultant. The women should remain semi-recumbent during this time.

6.4 When repeated doses of Prostin® or Propess® are required a CTG must be done for 20 minutes before the prescribed medication is administered. Following administration, the CTG must remain in progress for a total of 30

minutes before being discontinued and should only be discontinued if normal (all 4 features reassuring). Any concerns regarding the CTG should escalate as previously described.

6.5 A CTG should be commenced if there is a change in the woman's clinical condition or maternal observations (MEOWS) during IOL prior to the establishment of labour.

6.6 If regular painful uterine activity (2 contractions in 10 minutes or more) no further Prostin should be given and a CTG must also be commenced to assess fetal well-being. Dawes-Redman criteria should not be used when there is any evidence of labour.

6.7 As a routine the FH should be auscultated 4-hourly after administration of prostaglandin, except if the woman is asleep overnight and there are no prior concerns. A CTG should be repeated at a minimum of 12-14 hourly intervals during the IOL process in the absence of particular clinical scenarios that mandate such e.g. administration of prostaglandin, ante-partum haemorrhage. If there have been no prior concerns and the patient is asleep overnight, this can be deferred and performed on her waking, but the interval from last CTG must be not more than 24 hours. CTG monitoring is not routinely indicated in the absence of regular uterine contractions when ARM becomes possible 24 hours after last prostaglandin dose is administered.

6.8 If there is regular and painful uterine activity, increased analgesia requirements, reduced fetal movements or any clinical concerns CTG monitoring should be performed as soon as possible irrespective of the time of day/night and when the last CTG tracing occurred.

6.9 There should be a daily obstetric review whilst the woman is on the ante-natal ward to ascertain if there is any reason for fetal monitoring to be increased.

7. Labour following prostaglandin for post maturity

7.1 Provided that post maturity was the only indication for IOL, if a woman labours following the insertion of Prostin or Propess and is otherwise low risk, consideration can be made to continue labour under midwifery led care / midwifery led unit. See *Care in Labour* guideline.

7.2 Once contractions begin and fetal well-being has been confirmed by a normal CTG (this must be performed prior to admission to the midwifery led unit if that is the planned place of transfer), unless there are indications for continuous electronic fetal monitoring, intermittent auscultation of the fetal heart may be an acceptable option should the woman wish.

8. Transfer to Delivery Unit for Artificial Rupture of Membranes (ARM)

4.1 On transfer to the Delivery Unit:

- Once the hand over is complete, the assigned midwife should artificially rupture the patient's membranes (ARM) as soon as possible after transfer, if SROM has not already occurred
- If an ARM is performed, intravenous oxytocin may be started immediately (if there are no regular contractions present and particularly in a primiparous woman) or it may be appropriate to allow 2-4 hours to see if labour establishes (more usual in a multiparous woman). This can be addressed on an individual basis, after discussion with the on call obstetric registrar or the consultant covering the delivery unit taking into accounts the woman's preference.
- Discussion should take place with the most senior obstetrician on duty (ST6 or above) regarding a plan for intravenous oxytocin in women with a previous caesarean section. Women should be counselled on the use of Oxytocin as part of mode of delivery discussion when contemplating a VBAC induction.
- In multiparous women if they are in established labour the decision to commence intravenous oxytocin should also be discussed with a Consultant (for further guidance see section 12: Intravenous Oxytocin).

9. Complications of IOL

9.1 Uterine Tachysystole and Hyperstimulation:

- Tachysystole is defined as >5 contractions in 10 minutes for at least 20 minutes
- Hypertonic uterine contraction is defined as painful sustained uterine contraction for >90 seconds
- Hyper stimulation = tachysystole or hypertonic uterine contraction PLUS evidence of fetal compromise (i.e. a suspicious or pathological fetal heart rate pattern)
- If tachysystole or hypertonic uterine contraction is suspected during the induction process, commence a CTG immediately and continue until the contractions are ≤ 5 contractions in 10 minutes and the CTG is normal.
- If the CTG is normal and tachysystole is persistent (>30 minutes) please contact an Obstetrician ST6 or above as additional monitoring +/- terbutaline may be required to prevent fetal compromise.

9.2 Management of Hyperstimulation:

- Commence continuous CTG
- Summon help (emergency buzzer if necessary) - senior midwife and obstetrician (ST3 and above) and arrange transfer to the Delivery Unit
- If Propess in situ, remove immediately if CTG pathological. If the CTG is suspicious consideration should be given to removal of Propess
- In the context of an abnormal antenatal CTG, tocolysis is necessary with terbutaline 250mcg subcutaneous injection
- Transfer to delivery unit for continuous CTG and one to one care and consultant led/ST5 or above decision regarding ongoing IOL/delivery pathway

10. Failed IOL

10.1 When induction of labour fails i.e. if ARM is not possible after initial induction method:

- If induction fails, the maternal and fetal condition and the pregnancy in general should be fully reassessed including a CTG.
- An individual patient management plan must be developed following discussion with the woman and the obstetric team (ST3 and above).
- There should be Consultant obstetrician input into the plan, and this should be documented in the maternal records.

The subsequent management options include:

If after 3 doses of Prostin vaginal tablets and when 6 hours has elapsed after the final dose, the cervix remains unfavourable and ARM is not a feasible option, the options are:

(a) A rest day (this can be at home - Consultant decision)
(b) Use of 1 further dose of Prostin vaginal tablet – Consultant decision
(c) Use of CRB – this can be inserted immediately, no need for rest day
(d) Category 3 Caesarean section (aim to achieve within 24 hours of decision)

10.2 Failed Induction with Propess:

If after 24 hours Propess, the cervix remains unfavourable and ARM is not possible, the options are:

(a) Use of Prostin vaginal tablet (up to 2 doses) to commence immediately using the normal regime: 3mg 6 hours apart
(b) CRB
(c) Category 3 Caesarean section (aim to achieve within 24 hours of decision)

11. Operational aspects

11.1 Medical review during IOL

Those undergoing IOL should be visited at least once in 24hrs by an obstetrician (ST5 and above) but ideally Consultant grade (ward round Consultant or on call Consultant). The aim of this visit is to prioritise all women waiting to commence IOL, to review verbally with the IOL midwife all the current patients and planned admissions for IOL, to review any women where the midwives have concerns and to prioritise the women awaiting ARM or IV oxytocin. In some instances, where safe to do so, it may be reasonable for women waiting for ARM to do so at home (Consultant decision).

11.2 Delay in continuation of IOL process

When a woman has started on an IOL pathway, a decision to delay or suspend IOL should only be taken by the Consultant obstetrician on call and midwifery matron on call. Further Prostin should not be withheld due to service and capacity issues other than in exceptional circumstances.

11.3 Management of ARM List

The ARM list should be reviewed at least daily by the ward Consultant/on call Consultant. This will allow prioritisation and forward planning for order of transfer to Delivery Unit for continuation of IOL.

11.4 Delay in facilitation of ARM

If planned transfers to delivery unit are affected by availability of beds, the following protocol should be followed:

- Any women undergoing IOL waiting for a bed on the delivery unit should be reviewed to see if they require transfer or an assessment as to whether they can wait at home. This decision must be made by a consultant obstetrician and should only be considered for women in whom there is no need for inpatient monitoring.

  Women who should be discharged home to await direct transfer to Delivery suite for ARM include -
  - 37+0 to 41+6 weeks
  - Intact membranes
  - Any maternal age and induction for advanced maternal age
  - Gestational diabetes (GDM) on diet or metformin (good glycaemic
  - control)
  - Large for gestational age (LGA) baby
  - IVF pregnancy
  - BMI ≤ 40
  - HIV (undetectable viral load)
  - Pelvic girdle pain
  - Maternal request

  These women do not require daily CTG monitoring, but will be required to attend AAU for wellbeing assessment and CTG every 72 hours and offer membrane sweep.

  Women with the following conditions should be discharged home to await direct transfer to Delivery but require daily monitoring on AAU -
  - SGA (3rd -<10th centile)

- Polyhydramnios
- Stable Chronic Hypertension (not preeclampsia)
- RFM with return to normal movement pattern following induction
- Gestation over 41+6 weeks

The following women should not be discharged home -

- FGR <3rd centile
- Gestation <37 weeks
- Absent FM
- Unstable medical conditions

- Women undergoing induction of labour for indications not requiring tertiary care on a specific site and for whom transfer to delivery unit is likely to take longer than clinically appropriate due to restricted capacity (for most women this may be up to 48 hours), should have a discussion with the Consultant obstetrician regarding the option of transfer to an alternative MFT site to continue the IOL process. This discussion and the outcome must be documented in the woman's hospital records and the transfer proforma completed.
- If the woman accepts transfer, the transfer should be arranged by the maternity bleep holder and the IOL transfer proforma fully completed and emailed to the receiving site.

12. Intravenous Oxytocin

12.1 Oxytocin (syntocinon) is a hormone released by the posterior pituitary gland and exerts a stimulatory effect on the smooth muscle of the uterus. When given as a low dose infusion oxytocin causes regular uterine contractions, similar to those seen in spontaneous labour.

12.2 Intravenous oxytocin can be used to induce or augment labour. Factors influencing the use of oxytocin include whether the woman is a primigravida, a multigravida, has previously delivered by caesarean section (LSCS) or whether oxytocin is to be commenced prior to or in established labour. When assessing the stage of labour factors to be considered include not only cervical dilatation, but also the frequency, duration and strength of contractions.

12.3 Prior to commencing IV Oxytocin

The following should be performed and clearly documented electronically

- IV access/full blood count (FBC) and a Group and Save are required.

- Ensure that IV Oxytocin is not commenced for six hours following administration of dinoprostone (Prostin) tablets and 30 minutes following removal of dinoprostone (Propess) insert.
- The membranes should be ruptured before oxytocin is commenced unless advised specifically by a consultant. This can be performed prior to obtaining IV access to avoid delays and ideally within 20 minutes of arrival to delivery unit.
- Continuous electronic fetal monitoring should be commenced prior to IV Oxytocin for a minimum of 20 minutes – if the CTG is not normal an ST3 or above should review the woman prior to IV Oxytocin.
- IV Oxytocin should be prescribed appropriately by a doctor and checked by two midwives prior to commencing.
- The woman should be informed that IV Oxytocin will increase the strength and frequency of the contractions and that the baby should be monitored continuously. Prior to IV Oxytocin an epidural may be offered. It should also be explained that IV Oxytocin will bring forward the timing of birth but will not influence mode of birth or other outcomes.
- An examination is recommended 4 hours after the onset of regular contractions.
- If there is <2cm progress after 4 hours of regular contractions, further obstetric review is required.
- If there is confirmed delay in the second stage of labour an obstetrician should assess the woman before starting IV Oxytocin. If such delay occurs in a multiparous woman, delivery will almost always be favoured over the use of IV Oxytocin – use of IV Oxytocin would only be authorised by a consultant obstetrician.
- It is recommended that urea and electrolytes (U&Es) are checked (to look for hyponatraemia) after the first 10 units of oxytocin infusion has completed or after 3 litres of IV fluids has been administered (whichever occurs first).

12.4 Individual management plan

An individual management plan should be documented in the health records when IV Oxytocin commences.

12.5 Preparing the infusion

12.5.1 Midwives who have undertaken the IV therapy training are permitted to make up the oxytocin infusions. Two midwives must always check the correct dosage of the infusion and sign the appropriate additive label. Two midwives must also check the programming of the IVAC and ensure that free flow of fluid has not occurred before leaving the pump unattended.

12.5.2 The oxytocin infusion is made up by adding 10 units of oxytocin to 50mLs 0.9% Sodium Chloride. See Appendix 5.

12.5.3 The infusion rate should be increased no more frequently than every 30 minutes (in the 1st stage of labour) until contractions are 4-5 in 10 minutes lasting 40-60 seconds. Increments should be recorded electronically in the notes and labelled on the CTG monitoring.

12.5.4 Oxytocin in the 2nd stage of labour can be increased at 15-minute intervals. An obstetric review should always occur prior to commencing oxytocin in the 2nd stage of labour (see below) and discussed with a consultant obstetrician

12.5.5 The minimum dose possible of oxytocin should be used and this should be titrated against uterine contractions.

12.5.6 As with all cases of IV fluid administration, the woman's input/ output should be recorded on a fluid balance chart in the maternal records.

12.6 Assessment prior to commencing Oxytocin infusion (See *Appendix 6*)

12.6.1 Group A: Primigravid women

- An abdominal examination should be performed during the admission on Delivery Unit by either a midwife or a doctor.
- A vaginal examination (VE) should be performed with consent, prior to commencing IV Oxytocin (this may be up to 2 hours before commencement) – by either a midwife or a doctor (Bishop score- *Appendix 1*).
- Assess contractions – if >4:10 ensure the obstetrician is aware of this prior to starting IV Oxytocin.
- Any grade of doctor can sanction the use of IV Oxytocin whether prior to or in established labour.
- Consideration should be given to the use of oxytocin if contractions are inadequate at commencement of the second stage.

12.6.2 Group B: Multiparous women (no previous caesarean section)

- An abdominal examination should per performed prior to commencing IV Oxytocin by either a midwife or doctor **PRIOR** to labour.
- A VE should be performed, with consent prior to commencing IV Oxytocin (this may be up to 1 hour before commencement. If not in labour this can be performed by either a midwife or doctor.
- A doctor, ST3 or above can commence IV Oxytocin on a multiparous woman prior to the onset of labour. A woman who is para 4 or more the decision should be discussed with a consultant obstetrician.
- If contractions are 4 in 10 minutes or more, a thorough obstetric review **MUST** occur prior to starting IV Oxytocin if prior to established labour. This should be discussed with a consultant obstetrician.
- Care needs to be taken with multiparous women – if they are contracting well and not progressing, or progress has slowed down or there is evidence of obstruction on VE IV Oxytocin is often inappropriate and a consultant obstetrician **MUST** be involved in all decisions of this nature.
- For multiparous women in established labour a full abdominal and vaginal examination **MUST** be performed by a senior obstetrician (ST5 equivalent or above) and discussed with the consultant obstetrician. **Only a consultant can sanction the use of IV Oxytocin in a multiparous woman in established labour.**
- If a multiparous woman is commenced on IV Oxytocin in established labour an individual plan should be made as to when the next VE should occur, and this must be followed by a doctor review. The ideal contraction frequency should be documented. The requirement to reduce/stop the IV Oxytocin should contraction frequency be exceeded should also be clearly documented.

12.6.3 Group C: Multiparous women (who have delivered previously by one caesarean section) or women (any parity) who have any other previous uterine scar

- Prior to labour an abdominal and vaginal examination should be performed by either a midwife or doctor. Following VE the woman can wait up to 1 hour prior to starting IV Oxytocin if she wishes to mobilise and see if contractions begin.
- If in established labour a full thorough obstetric review must take place by a senior obstetrician (ST5 equivalent or above). An abdominal and vaginal examination must be performed and discussed with a consultant obstetrician.
- Only a Consultant obstetrician can sanction the use of IV Oxytocin in a multiparous woman with a previous caesarean section in established labour/woman with previous myomectomy and it should be documented clearly in the notes that a discussion has taken place about the increased risks of uterine rupture with use of IV Oxytocin.
- If a multiparous woman with a LSCS /woman with previous myomectomy commences IV Oxytocin an individual plan should be made as to when

the next VE should occur, and this must be followed by a doctor review. The ideal contraction frequency should be documented. The requirement to reduce/stop the IV Oxytocin should contraction frequency be exceeded should also be clearly documented in the notes. Hyperstimulation must be avoided as this will increase the risk of uterine rupture.

For ALL multiparous women:

- Multigravid women are at risk of uterine rupture if the uterus is allowed to become hypertonic.
- The use of oxytocin must be discussed with the consultant obstetrician in all cases of grand multiparity (parity ≥4), women who have delivered by previous caesarean section or multigravid (≤3) women in established labour.
- In multiparous women who have been commenced on IV Oxytocin at <4cm dilatation, care should be taken if considering increasing the rate of IV Oxytocin, especially in the latter first stage of labour (>8cm dilated), as a reduction in contractions at this stage may indicate cephalopelvic disproportion and increased IV Oxytocin will increase the risk of uterine rupture.
- It may be appropriate in some situations to reduce / stop the Oxytocin infusion in multiparous women who are in established labour. Any plan to do so should be discussed with the coordinating midwife/ obstetric on call team.

12.7 Fetal monitoring during the use of oxytocin

12.7.1 The woman should be informed that her baby needs to be continuously monitored with the use of IV Oxytocin. If this is declined IV Oxytocin should not be commenced and a consultant review should occur. Any re-evaluated or amended plan of care should be clearly documented

12.7.2 In the presence of a suspicious or pathological CTG an obstetric review is required. Consider is it appropriate to:

- Await review before further action
- Reduce or stop the IV Oxytocin
- Alter the maternal position

12.8 Maternal monitoring during the use of oxytocin

The monitoring below should be documented and occur as a minimum:

- A minimum of 4 hourly MEOWs and hourly pulse in the first stage of labour (see *Modified Early Obstetric Warning Score (MEOWS)* Guideline)
- A minimum of hourly BP and pulse with 4 hourly MEOWs in the second stage of labour
- 30-minute assessment of contractions

- VE offered 4 hourly in the 1st stage
- 4 hourly void in the 1st stage of labour and encouraged in the second stage

12.9 Management of Hyperstimulation

12.9.1 All women who have an IV Oxytocin infusion running must be closely observed for hyperstimulation. In the presence of hyperstimulation immediate medical review is required from either the obstetric registrar (ST3-7) or Consultant obstetrician. The following actions should be considered:

- Switching the infusion off
- Administering tocolytics - 250micrograms terbutaline subcutaneous as a slow bolus
- Altering the maternal position to left lateral

12.9.2 In the event of hyperstimulation with a suspicious or pathological trace, a senior obstetric review (ST5 or equivalent) should be requested, and documentation of a clear management plan formulated before recommencing and continuing to increase IV Oxytocin.

12.10 Indications for Stopping Oxytocin

Stopping the oxytocin infusion should be considered in the following circumstances:

12.10.1 **Pathological CTG**
Consideration for stopping oxytocin **must** occur when there is a pathological CTG until the woman has been reviewed by the obstetrician. If a fetal blood sample (FBS) has been performed and this is a normal result it is entirely appropriate to continue with IV Oxytocin in the presence of a pathological CTG. The full clinical picture needs to be taken into consideration and ongoing management discussed with an Obstetrician ST3 or above.

12.10.2 **Prolonged bradycardia**
The oxytocin infusion must be stopped when there is a prolonged fetal bradycardia (≥3minutes) until the woman has been reviewed by the obstetrician.

12.10.3 **Transfer to theatre**
Oxytocin must be stopped prior to transfer to theatre for an emergency Caesarean section or a trial of instrumental delivery in theatre for presumed fetal compromise (including an abnormal fetal blood sampling result). Oxytocin does not need to be stopped prior to a trial of instrumental delivery in theatre for failure to progress.

12.10.4 **Tachysystole**
Oxytocin may need to be reduced when there is evidence of tachysystole (>5 contractions in 10 minutes, or contractions lasting > 90 seconds) until the woman has been reviewed by the obstetric team. However, in certain

clinical circumstances as directed by the obstetric team it may be necessary to tolerate a degree of tachysystole and not reduce the oxytocin. Such management must only be undertaken in specific circumstances (e.g. failure to progress, short lasting, mild contractions, no fetal concerns) as directed by a consultant obstetrician. Remember that prolonged periods of tachysystole may result in abnormalities of the FHR and hyperstimulation.

12.10.5 The reason for stopping the oxytocin infusion should be documented in the maternal records.

13 Outpatient Induction of Labour (IOL)

13.1 Outpatient IOL is an effective alternative to inpatient IOL in women with a low-risk pregnancy. Evidence suggests, that with careful patient selection outpatient IOL is safe and there are no significant differences in maternal or fetal outcome compared to low-risk women being induced in an inpatient setting.

13.2 Wherever possible, low risk women being induced for post maturity should have outpatient IOL as a 1st line method of IOL. This should be booked by the community midwife.

13.3 Some women with pre-existing medical problems, who do not require enhanced maternal or fetal monitoring may be suitable for outpatient IOL. This will be documented in the patient's medical and hand-held notes by an obstetrician.

13.4 A controlled release prostaglandin pessary (Propess – 10mg Dinoprostone) is currently the only recommended method of outpatient IOL. This is the same for both primiparous and multiparous women.

13.5 Eligibility criteria

Women suitable for outpatient IOL with Propess
38+0 to 41+6 weeks
Parity ≤ 3
Intact membranes
Cervix not suitable for ARM
Any maternal age
Gestational diabetes (GDM) on diet or metformin (good glycaemic control)
Large for gestational age (LGA) baby
IVF pregnancy
BMI ≤ 40
HIV (undetectable viral load)
Pelvic girdle pain
Maternal request

13.6 Booking outpatient IOL

13.6.1 **Saint Mary's Oxford Road Campus (ORC)**

In-area women

The community midwife should book an appropriate outpatient induction slot on HIVE. If there are no available slots for the appropriate day, then please contact either the Antenatal ward manager or the Induction of labour coordinator

Out-of-area women

Please contact the antenatal ward manager or IOL coordinator to arrange an appropriate date / time

Antenatal Ward 65: 0161 2766529/ 2766530

Induction of labour coordinator: Grace Simpson 0161 7013858 / grace.simpson@mft.nhs.uk

All women having outpatient IOL must attend the antenatal assessment unit, Ward 64, 2nd Floor, ORC for a presentation and liquor volume scan prior to attending Ward 65 to commence IOL

13.6.2 **Saint Mary's Hospital at Wythenshawe**

In-area women

The community midwife should book an appropriate outpatient induction slot on HIVE. There are 3 slots per day Mon-Sat. If there are no available slots for the appropriate day then please contact either the maternity bleep holder or Antenatal Clinic Manager (details below).

Out-of-area women

Please contact the day care assessment unit ward manager as the first point of call, antenatal ward manager or maternity bleep holder to arrange an appropriate date / time. If there is no reply please contact the day care assessment unit (0161 291 2931).
Women will continue to attend the day care assessment unit (DCAU) for an ultrasound scan (presentation and liquor volume) prior to commencement of OP IOL.

DCAU Ward Manager: 0161 291 2931

Antenatal Ward Manager: 0161 291 2963

13.6.3 **Saint Mary's Hospital at North Manchester**

In-area women

The community midwife or medical staff in ANC will call the antenatal ward, book a date and time and provide a contact Telephone number

The IOL will be entered on E3 by the antenatal ward staff.

Out-of-area women

Please contact the antenatal ward to arrange an appropriate date / time

All women having outpatient IOL must attend the antenatal day unit, 3rd Floor, NMGH, for a presentation and liquor volume scan prior to attending the antenatal ward to commence IOL.

Antenatal Ward 0161 625 8253

Antenatal Day Unit 0161 922 3167

13.7 Process of Outpatient IOL

Day 1

Women will attend the Antenatal Assessment Unit (ORC), Day Care Assessment Unit (DCAU) Saint Mary's at Wythenshawe or Antenatal Day Unit at NMGH for a scan to assess fetal presentation and liquor volume. If the scan is normal the woman will remain in DCAU at Saint Mary's at Wythenshawe to commence the OP IOL process. At ORC, the women go to ward 65 to begin the induction process. At NNMGH the women go to the antenatal ward to begin the induction process.

The responsible midwife(s) for IOL will perform and record baseline maternal and fetal observations:

Maternal MEOWS	Blood Pressure Heart Rate Temperature Respiratory Rate Oxygen saturations Urinalysis
Pregnancy Assessment	Review of antenatal scans / placental site Confirm estimated date of delivery (EDD)

	Abdominal palpation (confirming fetal lie/ presentation/ head engagement) Assess for signs of Spontaneous Rupture of Membranes (SROM) Assess fetal movements Auscultate the fetal heart rate (FHR) with either a pinard/sonicaid and then perform a CTG Check the USS performed prior to induction for liquor volume (normal maximum pool depth (MPD) 2-8cm)

The responsible midwife should also confirm that there are no other risk factors which would make outpatient IOL inappropriate and that there have been no changes to the woman's clinical circumstances since booking outpatient IOL. If there are any concerns, then please contact the on call obstetric registrar or consultant

- If the CTG has met DR criteria and all of the above maternal/ fetal baseline assessments have been performed and are within normal ranges, then a Propess can be removed from the freezer
- A midwife who is experienced in vaginal examinations will assess the cervix (Bishop score – *Appendix 1*) and if the patient is not suitable for ARM then 10mg Propess will be inserted into the posterior fornix of the vagina
- For guidance on insertion of propess see *Appendix 3*
- A further CTG will then be performed for 30 minutes
- If the CTG is normal, then the midwife will complete all necessary documentation in the maternity records.
- Women can then go home and will be advised to **contact the maternity triage department if any of the following occur**:

    - Onset of uterine contractions (every 5 minutes or more)
    - Spontaneous rupture of membranes (SROM)
    - Vaginal bleeding
    - Reduced fetal movements
    - Propess falls out
    - Intolerable side effects (nausea, vomiting, palpitations or fever)

Outpatient IOL Day 2

- If the woman has not laboured / been admitted, then they will be ask to return to the antenatal ward 24 hours from when the Propess was inserted
- Maternal observations (MEOWS) will be performed and recorded and a CTG will be performed
- A vaginal examination will then be performed by the responsible midwife to assess suitability for ARM. The Propess will be removed at this time

13.8 Suitable for ARM

13.8.1 The woman will be added to the ARM list and advised on likely waiting times for transfer to delivery unit.
13.8.2 It may be appropriate for women to return home to await ARM if there are no changes to maternal/ fetal risk.

13.9 Unsuitable for ARM

13.9.1 Further options will be discussed with the woman by the obstetric team (ST3 or above)
13.9.2 Options include: Prostin tablets (to commence immediately – up to 2 doses of 3mg tablets 6 hours apart) cervical ripening balloon or caesarean section-category 3.

13.10 Attendance within 24 hours of Propess insertion

13.10.1 If spontaneous labour occurs following Propess then women should be advised to contact the maternity triage department.

13.10.2 An initial assessment and CTG will take place by the midwife on the maternity triage department and if **labour is confirmed** and the **CTG is normal** and **there are no changes to either maternal or fetal risk factors** then the woman can continue midwifery led care. In these women intermittent auscultation is appropriate if the woman wishes.

13.10.3 If there are any changes to risk factors or concerns with initial CTG monitoring then a review by an obstetrician (ST3 or above) must be requested immediately and an appropriate plan will be put in place for continued management

13.11 Spontaneous rupture of membranes (SROM)

13.11.1 If SROM occurs after the Propess has been inserted but labour is not yet established **DO NOT** remove the Propess unless there are clinical indications. Observe uterine activity and perform a CTG and a full set of maternal observations

13.11.2 Women should be advised that if SROM occurs whilst they are at home after Propess has been inserted then they should contact the maternity triage department by telephone for advice. They will be invited in for assessment and if SROM is confirmed will be given the option of either waiting for the full 24 hours aiming for spontaneous labour or being accelerated with oxytocin. If a decision is made for acceleration then the **PROPESS MUST BE REMOVED**.

13.11.3 Women should be advised to attend the maternity triage department immediately if they have SROM and there are any of the following:

- Feeling unwell / fever
- Abdominal pain
- Change in colour of liquor
- Reduced fetal movements

13.12 Propess comes out

13.12.1 If at any point the Propess falls out or is inadvertently pulled out / removed in error before the woman is in labour then the same Propess can be inserted as long as it has remained clean

13.12.2 A CTG should be performed prior to re-insertion for 30 minutes.

13.12.3 If the Propess is contaminated then a new Propess should be inserted into the posterior fornix of the vagina and remain in situ **24 hours from insertion of the first Propess.**

13.12.4 If the Propess comes out whilst at home, women should be advised to contact the maternity triage department and will be invited back to the unit accordingly, depending on workload / capacity.

13.13 Clinical indications for Propess removal

Propess should be removed in the following situations:

- Established labour has been confirmed on vaginal examination
- Pathological CTG / fetal bradycardia
- Active vaginal bleeding
- Hyperstimulation

14 Communication and Documentation

All women with learning disabilities, visual or hearing impairments or those whose first language is not English must be offered assistance with interpretation where applicable, and where appropriate a telephone interpreter must be used. It is paramount that clear channels of communication are maintained at all times between all staff, the women and their families. Once any decisions have been made/agreed, comprehensive and clear details must be given to the woman thereby confirming the wishes of the women and their families.
The contents of any leaflet issued must be explained in full at the time it is issued. All communication difficulties (including learning difficulties) and language barriers must be addressed as outlined in the previous paragraph at the time the leaflet is issued.
Ensure the provision and discussion of information of the risks and benefits with women during the antenatal, intrapartum and postnatal periods.
Staff should aim to foster a culturally sensitive care approach in accordance with the religious and cultural beliefs of the parents and families in our care.

15 Equality, Diversity and Human Rights Impact Assessment

This document has been equality impact assessed using the Trust's Equality Impact Assessment (EqIA) framework. The EqIA score fell into low priority; no significant issues in relation to equality, diversity, gender, colour, race or religion are identified as raising a concern.

16 Consultation, Approval and Ratification Process

This guideline has been approved and ratified in accordance with the agreed process. See: Guideline for the introduction or reapproval of a Clinical Guideline for Obstetric Practice.

17 Monitoring Compliance

This guideline will be audited in accordance with the Obstetric Divisional audit plan. The findings of the audit report will be presented to staff via the Site Obstetric Quality and Safety committee and ACE days and where appropriate an action plan will be developed and monitored.

18 Associated Trust Guidelines

Management of Preterm Labour

19 References

Gambacorti-passerini Z et al. (2016) Trial of labor after myomectomy and uterine rupture: a systematic review, AOGS 2016; 95(7):724-734

Greater Manchester & Eastern Cheshire Maternity Strategic Clinical Network, Induction of Labour (IOL) Guidelines, February 2019

Maternal age 39 weeks. Induction of labour at Term in older mother's scientific impact paper No 34, London RCOG

National Institute for Health and Clinical Excellence (NICE), Inducing Labour clinical guideline, 2008, 2021

Outcomes of Elective Induction of Labour compared with Expectant Management: Population based study, Sarah J Stock, Evelyn Ferguson, Andrew Duffy, Ian Ford, James Chalmers, Jane E Normal, BMJ 2012

20 Appendices

Table 1: Suitability for IOL with Propess / Prostin
Appendix 1: Bishop Score
Appendix 2: Site Specific Booking Guidance
Appendix 2a:- How to book induction of labour (IOL)
Appendix 3: Propess Insertion
Appendix 4: Cervical Ripening Balloon (CRB) Instructions
Appendix 5: Oxytocin Regime
Appendix 6: Use of Intravenous Oxytocin (IVO)
Appendix 7: SBAR: In-Utero Transfer Between Sites During Induction / for Elective Delivery - Process for In-Utero Transfer Between Sites During Induction of Labour or for Elective Delivery

Table 1: Suitability for IOL with Propess / Prostin

The table below is a guide only (not exhaustive list) identifying which groups of women are suitable for IOL using propess or prostin.

In view of this, any maternal or fetal parameters which do not follow the standard IOL guidelines that may affect the location, decision or method to induce must be discussed with the woman's own / or designated substitute consultant.

Management and guidance for specific obstetric conditions is available on the trust intranet and should be used to guide timing and indications for IOL.

Dinoprostone vaginal insert (Propess)	Dinoprostone tablet (Prostin)
Grandmultips ≥ para 5	Post-dates IOL
Suitable for women where there is an increased risk of hyperstimulation	Spontaneous Rupture of Membranes (SROM) x1 single Prostin prior to oxytocin augmentation if unfavourable Bishop score
Outpatient IOL (Section 13.0)	Maternal medical indications, e.g., pre-eclampsia, diabetes, maternal cardiac disease (unless specifies otherwise in care plan)
	Gestation <37 weeks upon discussion with a consultant
	Induction for fetal cardiac / surgical reasons upon discussion with a consultant
	Multiple pregnancy
	SGA/ FGR
	Obstetric cholestasis, RFM

Appendix 1: Bishop Score

The Bishop Score is a measure of assessing favourability of the cervix for labour and should be performed/ documented at each vaginal examination when assessing cervical change in response to prostaglandins.

CERVICAL SCORING	0	1	2	3
Dilatation (cm)	<1	1-2	2-4	>4
Length (cm)	>4	2-4	1-2	<1
Consistency	Firm	Average	Soft	
Position	Posterior	Mid	Anterior	
Station (relation to ischial spines)	-3	-2	-1/0	Below

Appendix 2: Booking Guidance

Access and order through the patient's record on Hive – see appendix 2a.

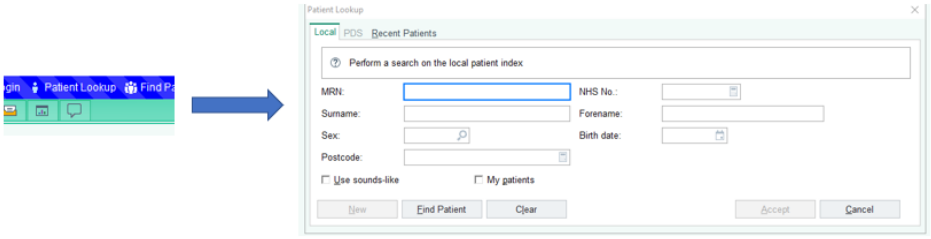
What to do when IOL slots are not available at the preferred site on the preferred day?

- If the next available IOL date is not soon enough you must consider cross site availability and refer to appendix 2a.
- The details and the date at which IOL is required must be added to the induction of labour request on Hive. This will then list the patient's details on the request depot on the Snapboard within Hive. This is commonly referred to as the expediate list.
- This list is reviewed at least twice weekly, and the induction team will try an expedite women on this list into more appropriate dates
- Appropriate maternal and/or fetal surveillance (type/frequency / place) must be put in place until an appropriate date for IOL is offered
- If the indication for IOL is urgent then the ward or delivery unit (if appropriate) should be contacted and an IOL plan formulated

Appendix 2a - How to book induction of labour (IOL)

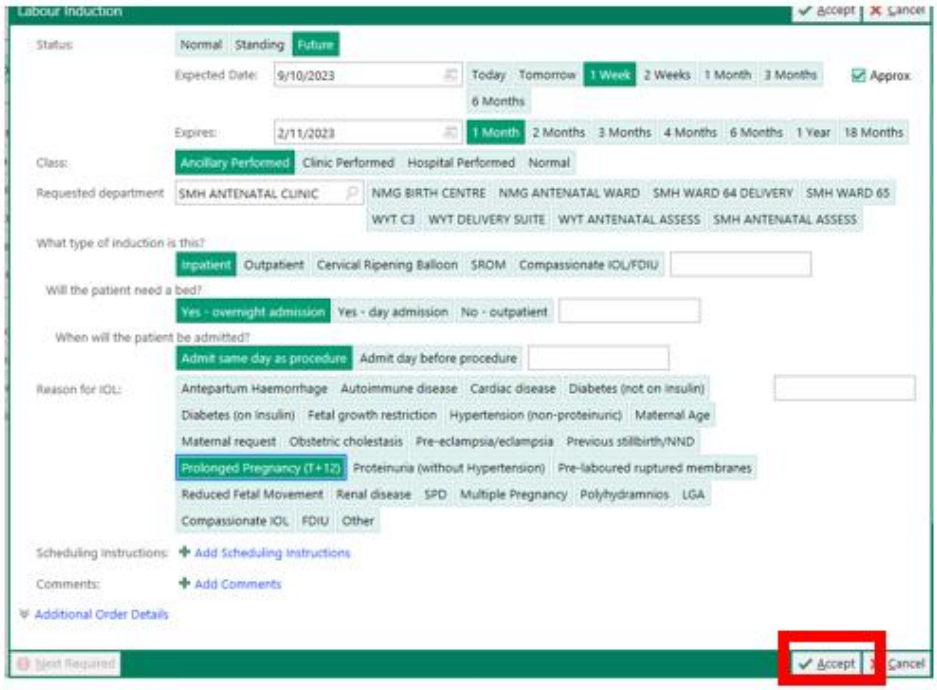
This SOP has been developed to ensure a consistent approach is used when booking IOL for women in Hive; it ensures that the entire process is completed by the clinician booking IOL and that the MCS capacity is considered to maintain effective flow:

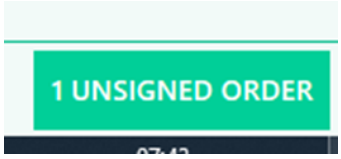
1. **Locate the woman on Hive**



2. **Create IOL Order**

Complete the necessary boxes and click accept





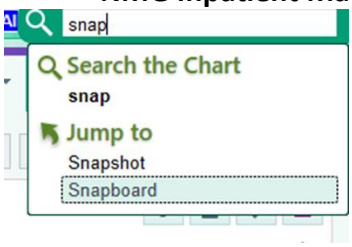
Click to sign the Order

3. **Snapboard**

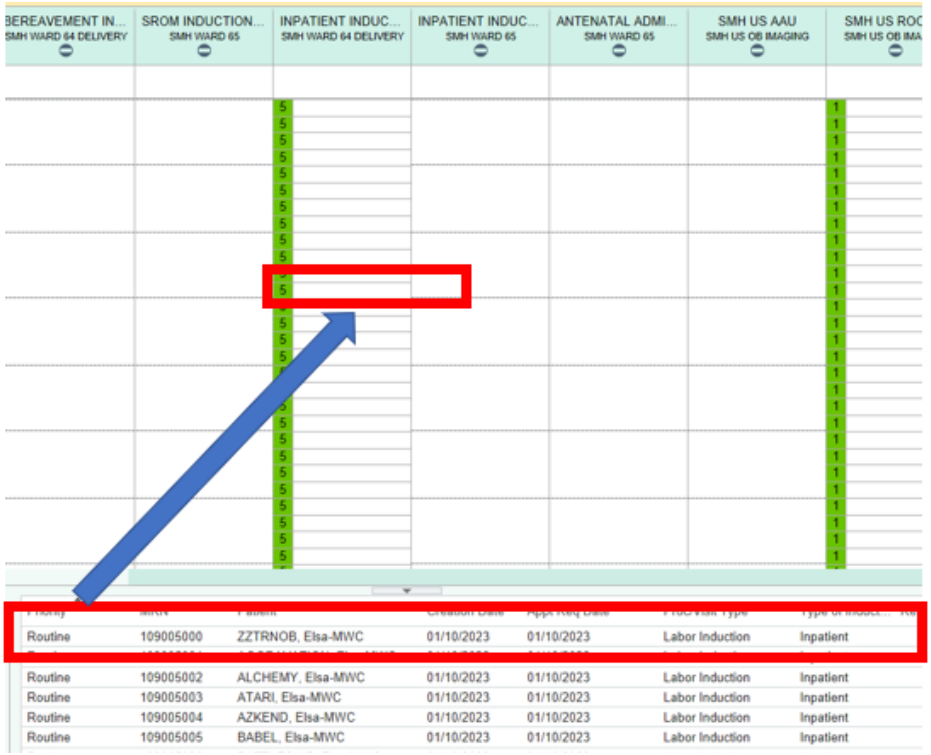
Go to the Snapboard for the ward you are wishing to book the induction.

If there are no available slots on that ward for that day, you must check what the availability is at the other sites. If booking an induction on another site, only use the available slots, please do not overbook.

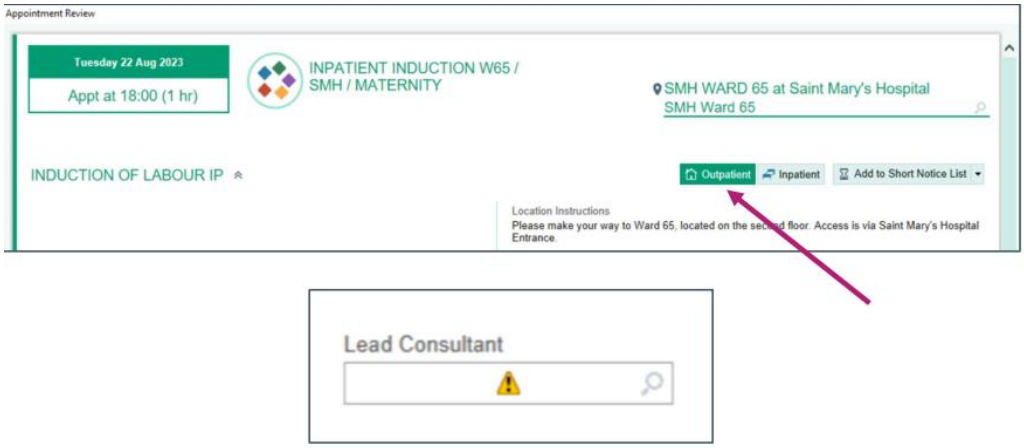
- **SMH – Inpatient Maternity**
- **WYY – Inpatient Maternity**
- **NMG Inpatient Maternity**



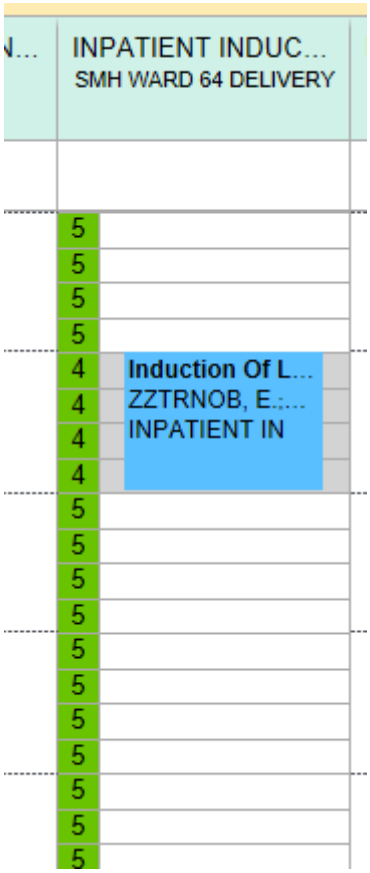
4. **Chose the appropriate induction slot, select and drag the person into a slot:**



Ensure you select **Outpatient** or **Inpatient** and click to **Schedule** and enter the **Lead Consultant**

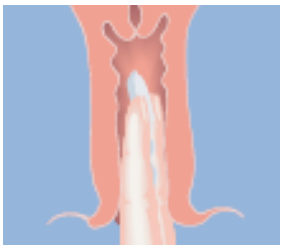


They will then appear on the Snapboard in the selected induction of labour slot.

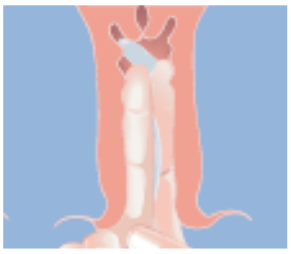


Appendix 3: Propess Insertion

- Remove Propess from the freezer. It should not be left at room temperature for more than 20 minutes prior to insertion.
- Prior to insertion, ensure no contraindications to induction of labour; perform maternal observations and a pre- Propess CTG ensuring DR criteria met.
- Provided the CTG is normal and cervical assessment demonstrates Bishop's score<6 (*Appendix 1*) proceed with insertion of Propess.
- Holding the Propess between middle and index fingers, place pessary high into the posterior vaginal fornix as shown in pictures below. Hibitane cream should be avoided.
- Using the examining fingers, adjust the position of the pessary so that it lies horizontally in the posterior fornix behind the cervix.
- Gently withdraw fingers from the vagina, leaving the Propess.
- The string can be trimmed to reduce chances of the pessary being inadvertently pulled out, but must be left



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.

Appendix 4: Cervical Ripening Balloon (CRB) Instructions

Prior to use:
1. Confirm term, singleton, longitudinal lie, cephalic presentation, intact membranes.
2. A CTG should be performed ensuring DR criteria met before CRB insertion.
3. An abdominal palpation should be performed to ensure the fetus is cephalic and the head is engaged.
4. A VE should be performed to determine if ARM is possible and to calculate the Bishop's score by an appropriately trained member of staff who should insert the CRB, if ARM is not possible.

Insertion of balloon:
1. Perform vaginal examination.
2. Hold the CRB with the left hand and insert into cervix by siding along the fingers of your right hand and advance until both balloons have entered the cervical canal.
3. Inflate the uterine balloon with 40ml normal saline through the red Check-Flo valve (U).
4. Once inflated, pull back until the uterine balloon is against the internal cervical os.
5. When the vaginal balloon is visible outside the external cervical os, inflate with 20ml normal saline through the green Check-Flo valve (V).
6. Once the balloons are situated on each side of the cervix, add more fluid in 20ml increments until each balloon contains 80ml (maximum)

Alternatively:
If the cervix is very posterior or unfavourable, balloon insertion may be difficult:
1. Place the patient in lithotomy position.
2. Insert a speculum to visualise the cervix.
3. Grasp the catheter with sponge holders and insert the device into the cervix (4-7) as above.

After insertion:
1. A post-procedure CTG should be performed for 30 minutes.
2. If reassuring, discontinue, encourage the woman to mobilise.

Removal (after 12 hours):
1. Perform a CTG 11½ hours following insertion for at least 30 minutes.
2. The midwife should deflate the balloons (removing 80ml from both the uterine and vaginal balloons) and remove 12hrs after insertion.
3. Perform a VE to assess suitability for ARM.
4. If suitable for ARM, transfer to Delivery Unit for ARM and/or oxytocin.
5. If unsuitable for ARM, the patient should be reviewed by the consultant on call or a ST3 doctor or above.

Appendix 5: Oxytocin Regime

Please see Appendix 7 for sample prescription

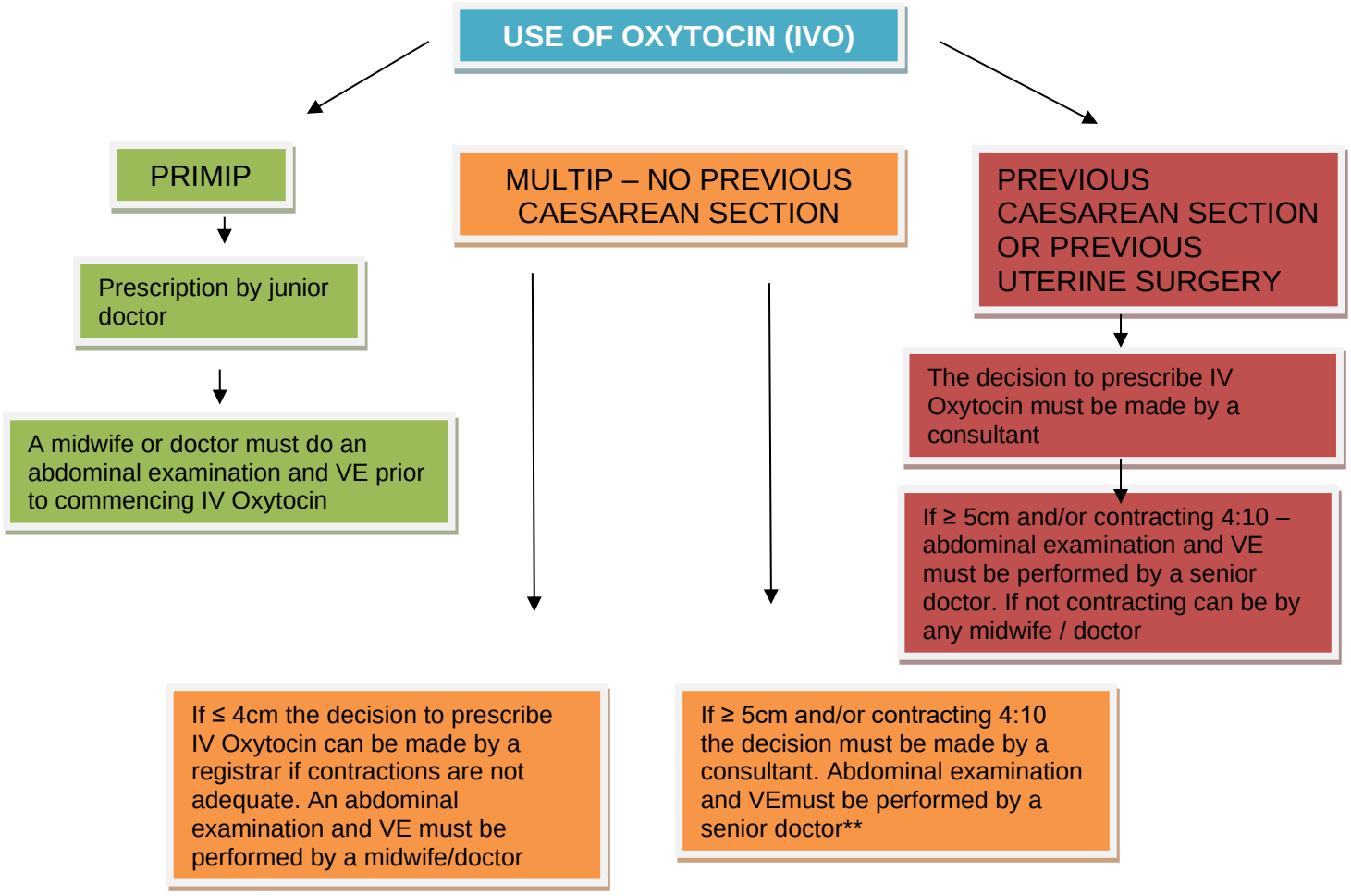
- The oxytocin infusion is made up by adding 10 units of oxytocin to 50mls 0.9% Sodium Chloride
- The solution is run through a syringe driver with a starting dose of 1-2 milliunits per minute (volume infused 0.3mls/hr)
- In the 1st stage of labour increments are every 30 minutes
- In the Summary of Products Characteristics (SPC) the licenced maximum dose is 20 milliunits per minute. Always refer to an Obstetrician (ST3 or above) or Consultant if the Oxytocin infusion needs to be increased over 6.0 mls/hr (20 milliunits per minute) in Multiparous women.

Table C: Oxytocin Regime

Oxytocin Infusion regime (10 Units Oxytocin in 50mls 0.9% Sodium Chloride)

Time after starting Infusion in Minutes	Volume Infused (mL/hr)	Oxytocin Infused Milliunits/min
0	0.3	1
30	0.6	2
60	1.2	4
90	2.4	8
120	3.6	12
150	4.8	16
180	6.0	20
210	7.2	24
240	8.4	28
270	9.6	32

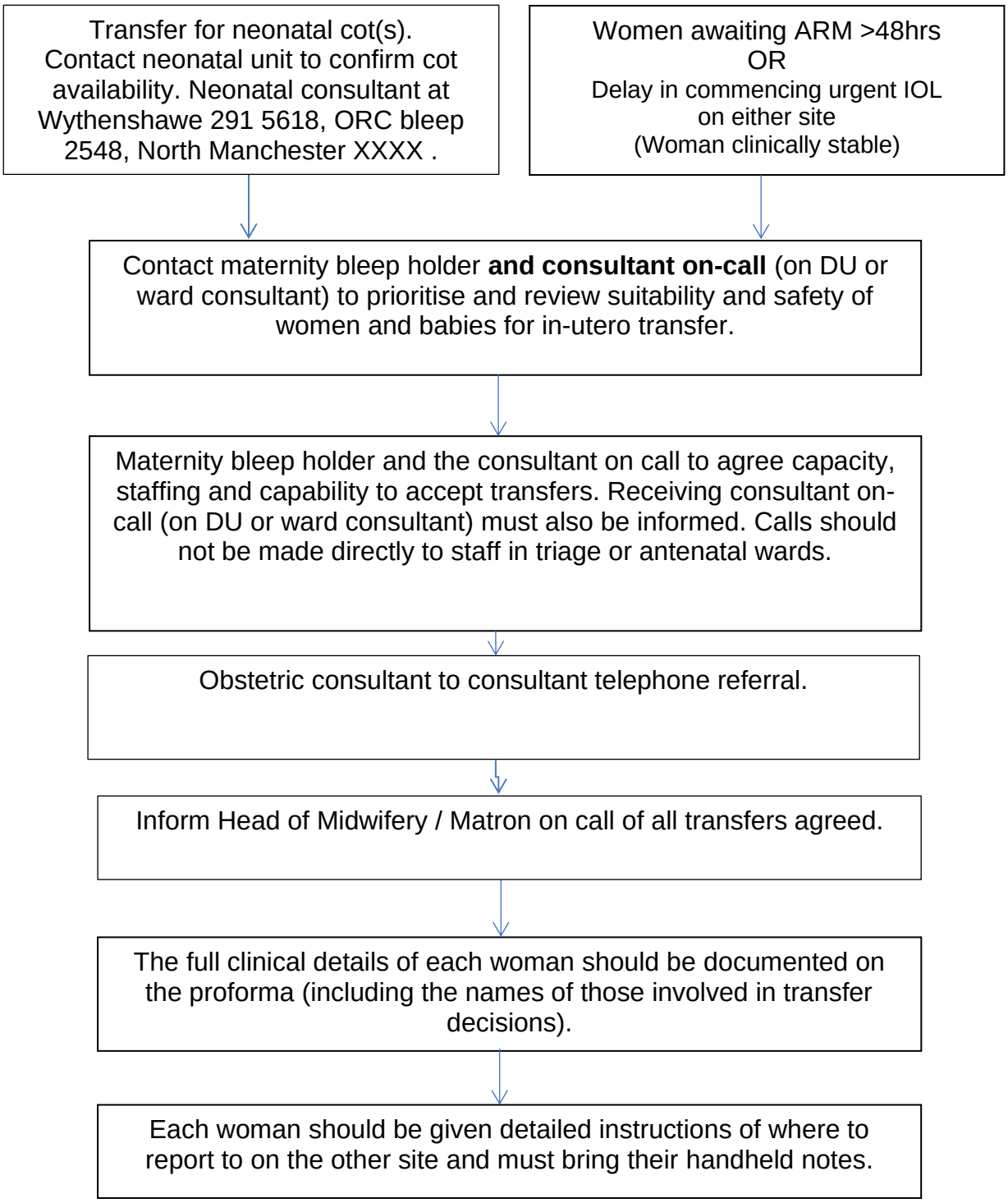
Appendix 6: Use of Intravenous Oxytocin (IVO)



** Senior doctor = ST5 or above / Consultant

Appendix 7

SBAR: In-Utero Transfer Between Sites During Induction / for Elective Delivery
Process for In-Utero Transfer Between Sites During Induction of Labour or for Elective Delivery



SITUATION

Gestation: Parity: Inpatient Y N Since date:

Indication for Delivery: …… Planned Mode of Delivery: ...……

Induction agents given: None Date / Time:

1. .....

2. .....

3. .....

Spontaneous rupture of membranes: Yes / No

BACKGROUND			Details:
Obstetric history:	No	Yes	
Prev. Caesarean/uterine surgery	No	Yes	
Allergies:	No	Yes	
Medical / surgical history:	No	Yes	
Mental health concerns:	No	Yes	
Anaesthetic concerns	No	Yes	
Specialist midwives' involvement:	No	Yes	
Safeguarding concerns:	No	Yes	
Social services plan:	No	Yes	
Infection risk:	No	Yes	
Neonatal cot required:	No	Yes	

If applicable please send photocopy of inpatient notes and clinic letters

ASSESSMENT Date / Time:

Abdominal palpation: .....

Last vaginal examination: .....

Last CTG: .....

RECOMMENDATION

TRANSFER AGREED BY: .....

Date and Time: ……/……./…….. .... : ….

Consultant at referring unit: .....

Consultant at receiving unit: .....

Bleep holder at referring unit: .....

Bleep holder at receiving unit: .....

Name of Matron / HoM / Deputy HoM informed: