Induction of labour and Augmentation - Full Clinical Guideline

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1. <u>Introduction</u>

Induction of labour (IOL) is defined as an intervention to artificially initiate uterine contractions leading to progressive effacement and dilatation of the cervix and the birth of the baby. It is undertaken when it is agreed that either the fetus or the mother will benefit from delivery.

2. <u>Purpose and Outcomes</u>

As IOL is an obstetric intervention, it carries the risk of maternal and fetal complications and, therefore, a clear indication should be present and documented. For Induction of labour following diagnoses of Intrauterine fetal death refer to separate guideline.

3. <u>Key Responsibilities and Duties</u>

- Induction for prolonged pregnancy in an otherwise low risk pregnancy may be offered and arranged by a midwife
- Induction of labour for post dates should be offered to all women at 41⁺⁰
- Induction for any other reason should be discussed with a senior obstetrician
- Induction of labour prior to 39 weeks should be discussed with a consultant obstetrician
- Outpatient induction of labour can be offered to women who meet the inclusion criteria
- Induction at RDH can be planned on ward 314 for women who meet the inclusion criteria
- For complex patients like morbidly obese aim to induce labour early in the week rather than weekend

4. <u>Abbreviations</u>

ARM	-	Artificial Rupture of Membranes
BP	-	Blood Pressure
CRP	-	C-Reactive Protein
CS	-	Caesarean Section
CTG	-	Cardiotocograph
ECV	-	External Cephalic Version
EFM	-	Electronic Fetal Monitoring
FBC	-	Full Blood Count
FHR	-	Fetal Heart Rate
FM	-	Fetal Movements
GBS	-	Group B Streptococcus
HVS	-	High Vaginal Swab
IA	-	Intermittent Auscultation
IOL	-	Induction of Labour
IM	-	Intra Muscular
IUFD	-	Intra Uterine Fetal Death
IUGR	-	Intra Uterine Growth Restriction

IV	-	Intravenous
Mcg/µg	-	microgram
NICU	-	Neonatal Intensive Care Unit
PGE2	-	Prostaglandin E2
PPH	-	Post Partum Haemorrhage
PPROM	-	Preterm Prelabour Rupture of Membranes
PROM	-	Prelabour Rupture of Membranes
(S)ROM	-	(Spontaneous) Rupture of Membranes
SFH	-	Symphysis Fundal Height
SC	-	Sub Cutaneous
VE	-	Vaginal Examination

5. <u>Specific circumstances for induction of labour</u>

The reason for induction of labour can be many and should be clinically justified with the risks of continuing the pregnancy outweighed by the consequences of induction.

Induction of labour is not generally recommended if a woman's baby is in the breech position. However, consider induction of labour for babies in the breech position if:

- birth needs to be expedited, and
- external cephalic version is unsuccessful, declined or contraindicated, and
- the woman chooses not to have a planned caesarean birth.

Discuss the benefits and risks associated with induction of labour with the woman.

5.1. Prolonged pregnancy

Induction of labour for postdates should be offered to all women at 41⁺⁰ Risks with prolonged pregnancy beyond 41 weeks include

- Increased risk of caesarean birth
- Increased likelihood of the baby needing admission to the neonatal intensive care unit
- increased risk of still birth and neonatal death

Discuss with the woman that induction of labour from 41⁺⁰ may reduce the risks, but that they also need to consider the impact of induction on their birth experience when making their decision.

Discuss preferences about mode of birth with women early on in their pregnancy. Take into account their individual circumstances, and discuss that options for birth can include:

- expectant management, or
- induction of labour, or
- planned caesarean birth (see the NICE guideline on caesarean birth).

Record these discussions and the woman's preferences in her notes.

Be aware that, according to the 2020 MBRRACE report-UK on perinatal mortality, women from some minority ethnic backgrounds or who live in deprived areas have an increased risk of stillbirth. 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)
 - \circ $\,$ 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)

Table 1: Outcomes for women that may be more likely with induction at 40-42 weeks (nulliparous women only)

Outcomes	Induction of labour at 39 weeks	Induction of labour at 40-42 weeks	Risk difference
Caesarean birth	About 1,860 per 10,000 women would be expected to have a caesarean birth (so 8,140 would not)	About 2,220 per 10,000 women would be expected to have a caesarean birth (so 7,780 would not)	About 360 more women per 10,000 whose labour was induced at 40-42 weeks would be expected to have a caesarean birth; so for 9,640 per 10,000 the outcome would be the same irrespective of the timing of induction
NICU admission	About 1,170 per 10,000 babies would be expected to be admitted to NICU (so 8,830 would not)	About 1,300 per 10,000 babies would be expected to be admitted to NICU (so 8,700 would not)	About 130 more babies per 10,000 whose mothers' birth was induced at 40-42 weeks would be expected to be admitted to NICU; so for 9,870 the outcome would be the same irrespective of the timing of induction

Table 2: Outcomes for women that may be more likely with induction at 42 weeks (mixed parity)

Outcomes	Induction of labour at 41 weeks	Induction of labour at 42 weeks	Risk difference
Perinatal death	About 4 per 10,000 babies would be expected to die (so 9,996 would not)	About 35 per 10,000 babies would be expected to die (so 9,965 would not)	About 31 more babies per 10,000 whose mothers gave birth at 42 weeks would be expected to die; so for about 9,969 babies per 10,000 the outcome would be the same irrespective of the timing of induction
NICU admission	About 300 per 10,000 babies would be expected be admitted to NICU (so 9,700 would not)	About 440 per 10,000 babies would be expected to be admitted to NICU (so 9,560 would not)	About 140 more babies per 10,000 whose mothers gave birth at 42 weeks would be expected to be admitted to NICU; so for about 9,860 babies per 10,000 the outcome would be the same irrespective of the timing of induction

Table 3: Outcomes for women that may be more likely with induction at 43 weeks (mixed parity)

Outcomes	Induction of labour at 42 weeks	Induction of labour at 43 weeks	Risk difference
Caesarean birth	About 1,330 per 10,000 women would be expected to have a caesarean birth (so 8,670 would not)	About 2,040 per 10,000 women would be expected to have a caesarean birth (so 7,960 would not)	About 710 more women per 10,000 would be expected to have a caesarean birth; so for about 9,290 the outcome would be the same irrespective of the timing of induction

5.1.1. Women who decline IOL at 41+0

If a woman chooses not to have induction of labour at 41⁺⁰, discuss the woman's options from this point on with her and record the woman's decision in her notes.

- 1. Expectant management beyond 41⁺⁰
 - Arrange the following for when the pregnancy is between 41⁺⁰ and 42 weeks gestation:
 - An appointment in PAU/MAU for Ultrasound to estimate Liquor volume and doppler and CTG
 - o A slot for potential induction of labour following their PAU/MAU appointment

During the above appointment, these women should have:

- A review by the Senior Obstetric registrar oncall or consultant oncall to discuss the risks of prolonged pregnancy
- The discussion should be clearly documented and should include:
 - Monitoring only gives a snapshot of the current situation, and cannot predict reliably any changes after monitoring ends, but provides information on how their baby is at the moment and so may help them make a decision on options for birth
 - Adverse effects on the baby (including stillbirth), and when these events might happen, cannot be predicted reliably or prevented even with monitoring
 - Fetal monitoring might consist of twice-weekly
- 2. Women who decide to have expectant management beyond 42 week:
 - a. Transfer to consultant care
 - b. Offer further appointments in PAU/MAU twice weekly, reiterating the limitations as above specified:
 - i. CTG
 - ii. Ultrasound estimation of liquor volume and Doppler
 - iii. Review by senior obstetrician with the opportunity to discuss their decision again
- 3. Women who decline induction of labour but do not wish to deliver after 41 weeks: If a woman chooses not to have induction of labour but does not wish to prolong pregnancy after 41 weeks, a clinic appointment is to be arranged at 40 weeks gestation to discuss the woman's options from this point on with her (for example, expectant management or planned caesarean section) and record the woman's decision.

Advise women to contact their midwife or maternity unit if they change their mind before their next appointment, or to contact the assessment unit as soon as possible if they have concerns about their baby.

5.2. Pre-labour rupture of membranes – term

Click here for full clinical guideline on KOHA

5.3. Pre-labour rupture of membranes – preterm (PPROM) Click here for full clinical guideline on KOHA

5.4. Previous Caesarean section

- When delivery is indicated, women who had a previous Caesarean section may be suitable for IOL either by propess or foley's catheter and should be discussed with the consultant. Thorough obstetric assessment is warranted.
- Click here for full clinical guideline: Vaginal Birth Following Previous Caesarean Section on KOHA

5.5. Maternal condition

There is additional guidance for pregnancies complicated by diabetes, obstetric cholestasis and hypertensive disorders.

For information on timing of IOL for women with these conditions, click on the link to the full guidelines:

<u>Click here for full clinical guideline: Diabetes in Pregnancy</u> <u>Click here for full clinical guideline: Obstetric Cholestasis</u> <u>Click here for full clinical guideline: Hypertensive disorders in pregnancy</u>

5.6. Suspected fetal macrosomia

- For offering IOL in case of suspected macrosomia in the presence of maternal obesity <u>click here</u> <u>for full clinical guideline on KOHA</u>
- Due to the associated increased risk of shoulder dystocia, informed decision about the mode of delivery should be made after discussing the advantages and disadvantages of induction and the difficulty in accurately predicting the size of the baby on scan.
- Factors including BMI, maternal stature, previous birth weight, previous mode of delivery and Bishops score should be taken into account before an informed decision is made.
- Discuss the option for induction of labour, expectant management and planned caesarean section using the benefits and risks
- There is uncertainty about the benefits and risks of induction of labour compared to expectant management, but:
 - With induction of labour the risk of shoulder dystocia reduced compared with expectant management
 - with induction of labour the risk of third and fourth degree perineal tears is increased compared with expectant management
 - there is evidence that the risk of perinatal death, brachial plexus injuries in the baby, or the need for emergency caesarean birth is the same between the two options

5.7. Small for gestational age – fetal growth restriction

<u>Click here for link to IOL framework for timings of delivery</u> Do not induce labour if there is fetal growth restriction with confirmed fetal compromise. Offer caesarean birth instead.

5.8. Reduced fetal movements

Click here for link to IOL framework for timings of delivery

5.9. Twin pregnancy

Click here for full clinical guideline in relation to indication and timing in case of multiple pregnancy

5.10. Maternal request

- IOL for maternal request should not be routinely offered.
- Under exceptional circumstances, an IOL could be considered after discussions with the woman's Consultant.

5.11 History of precipitate labour

- This is defined as the spontaneous expulsion of the fetus occurring in less than 3 hours from the establishment of uterine contractions.
- Women with a history of precipitate labour often request elective IOL in order to avoid unattended delivery and ensure birth in the hospital.
- A history of precipitate labour is not an indication for IOL by NICE guidelines and should not be recommended

5.12 Any Other indications

- Maternal age: offer IOL from 39⁺⁰-39⁺⁶ to all women aged over 40 by 10 weeks gestation
- IOL for any other reason should only be considered after 39 weeks and at Consultant discretion

6. Information and decision making

Prior to IOL the following should be discussed with the woman:

- 1. Explain to women that induction of labour is a medical intervention that will affect their birth options and their experience of the birth process. This could include that:
 - <u>Vaginal examinations to assess the cervix are needed before and during</u> induction, to determine the best method of induction and to monitor progress
 - <u>Their choice of place of birth will be limited, as they may be recommended</u> <u>interventions (for example, oxytocin infusion, continuous fetal heart rate</u> <u>monitoring and epidurals) that are not available for home birth or in midwife</u> <u>led care birth units</u>
 - <u>There may be limitations on the use of a birthing pool</u>
 - <u>There may be a need for an assisted vaginal birth (using forceps or</u> <u>ventouse), with the associated increased risk of obstetric anal sphincter injury</u> <u>(for example, third or fourth degree perineal tears)</u>
 - Pharmacological methods of induction can cause hyperstimulation this is
 when the uterus contracts too frequently or contractions last too long, which
 can lead to changes in fetal heart rate and result in fetal compromise
 - And induced labour may be more painful than a spontaneous labour
 - <u>Their hospital stay may be longer than with a spontaneous labour</u>
- 2. Reason for induction.
- 3. When, where and how induction will take place.
- 4. The arrangements for support and pain relief
- 5. Alternative management 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 of labour
- 6. Risks and benefits of IOL in specific circumstances, and the proposed induction methods
- 7. That Induction may not be successful, and how this would affect the woman's options (Individual management plan in the case of unsuccessful IOL).
- Supporting written information to be given IOL leaflet and if applicable Outpatient IOL leaflet
- If IOL is performed with the use of prostaglandins, women should be advised about the possible risk of uterine hyperstimulation, which may or may not be accompanied by FHR changes.
- All women undergoing induction of labour should be offered membrane sweeping

Adequate time should be given to the woman to make decisions and she should be supported in the decisions she makes.

6.1. Prior to IOL

Take the following precautions to avoid the adverse effects of cord prolapse, which may occur if labour is induced:

- before induction, abdominally assess the level and stability of the fetal head in the lower part of the uterus at or near the pelvic brim (see the recommendations on assessment before induction)
- during the preliminary vaginal examination, obstetricians and midwives should palpate for umbilical cord presentation and avoid dislodging the baby's head
- A CTG should be performed, interpretable and categorised as normal immediately prior to the insertion of Prostoglandins.
- Carry out continuous cardiotocography during induction after the membranes have ruptured, if the presenting part is not stable and not well-applied to the cervix. In this situation, discuss the risks and benefits of induction of labour with the woman, and if necessary consider caesarean birth. If the presenting part stabilises and the cardiotocogram is normal, use intermittent auscultation unless there are clear indications for further cardiotocography.

Check that there is no evidence of a low-lying placenta on previous scans before membrane sweeping and before induction of labour.

6.2. <u>Membrane sweeping</u>

Women should be advised that membrane sweeping:

- Reduces the need for formal IOL
- Increases the likelihood of spontaneous labour
- Increases the incidence of uncomplicated, light vaginal bleeding
- Is associated with "discomfort" or "pain" at the time it is performed.

Ideally this discussion should take place on a separate occasion prior to the sweep providing women adequate time to reach a decision.

At antenatal visits from 39⁺⁰ weeks gestation, discuss with women if they would like vaginal

examination for membrane sweeping. If so, obtain verbal consent from them prior to carrying out the

membrane sweep

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

- The Bishops score is to be documented following each VE carried out to perform a sweep
- Auscultation of the fetal heart rate for at least 60 seconds is to be carried out after the sweep

6.3. Women on antenatal Low Molecular Weight Heparin

Click here for Thromboprophylaxis during and up to 6 weeks after pregnancy guideline

7. <u>IOL process</u>

Following admission a labour risk assessment (labour notes booklet) needs to be completed including:

- History
- Observations (such as BP, pulse, temp etc)
- Abdominal palpation
- Urinalysis

- Assessment of uterine activity
- Any history of vaginal loss (liquor, blood, show etc)
- Fetal heart rate auscultation followed by electronic fetal monitoring (cCTG) as per fetal monitoring guidelines.

Review the CTG after 30 minutes and document classification:

- If the CTG is not normal continue electronic fetal monitoring, do not proceed with induction and escalate for urgent medical review
- If the CTG is normal discontinue and carry out a vaginal examination to assess the Bishop Score (see appendix 2)

8. <u>Outpatient induction of labour (at time of implementation offered at RDH only)</u>

May be offered to all women that meet the inclusion criteria (can also be found in labour note booklet):

- □ Uncomplicated pregnancy requiring induction of labour for prevention of prolonged pregnancy Up to 41⁺⁰ weeks gestational age
- <u>Or</u> Uncomplicated pregnancy requiring induction of labour for other low risk reasons as per discretion of consultant (GA 38-41⁺⁰⁾
 - \square Woman chooses outpatient induction
 - □ Woman has ability to communicate with labour ward staff
 - □ Capacity to consent
 - □ Age ≥18 years
 - □ BMI <40 in 3rd trimester
 - \Box Number of previous births is \leq 4 and NO previous LSCS
 - $\hfill\square$ Access to a functional phone
 - □ No child protection plan (safe guarding issues to be considered)
 - □ Adult birth partner present
 - □ Own transport and lives within 30 minutes driving time to the RDH or QHB
 - Outpatient induction requiring induction of labour for prevention of prolonged pregnancy at 41⁺⁰ weeks gestational age can be offered to women by the community midwife for low risk women meeting the inclusion criteria
 - All other reasons will be per discretion of the consultant and should therefore be clearly documented, with timing of IOL between 39- 41⁺⁰ gestational age (if decision for IOL from 38 weeks but prior to 39 weeks at consultant discretion the consultant may still offer outpatient induction if meeting all other criteria)
 - Use the Outpatient Induction checklist in the labour note booklet for guidance and documentation
 - If not able to contact the woman 6 hours after discharge, two attempts are considered reasonable. Await for her to come in at her 24 hour post propess appointment
 - If the woman fails to attend her 24 hour post propess appointment:
 - Attempt to contact her via telephone
 - \circ $\;$ If unsuccessful, arrange a home visit by a community midwife

9. Induction on RDH antenatal ward

Inclusion criteria for IOL on Ward 314:

- Uncomplicated DCDA twins >37 weeks
- BMI <50
- Polyhydramnios with head fixed in the pelvis

>37 weeks

Induction of Labour (IOL) to be completed on Labour Ward only:

- Para 5 or greater
- VBAC
- Polyhydramnios when the head is not fixed
- Twins MCDA
- Severe PET
- SROM augmentations requiring Propess
- Severe IUGR with abnormal dopplers
- Cardiac disease and haematological disorders (under discretion of SXR and RJH)
- <37 weeks gestation
- Significant APH
- Oligohydramnios

Obstetric review - Monday – Friday the Specialist Registrar (SpR) or Consultant assigned to PAU will attend to review IOL patients. On weekends the 2nd on SpR will come and review the inductions after LW handover at 9am. If there are any difficulties reaching a doctor to review the women having inductions on 315, this should be escalated to the duty obstetric consultant".

Prostin - Prostin can be administered in the ward environment, however administration needs to remain

by an obstetric SpR or Consultant.

Patient flow /review pathway



10. Pain relief

Explain to women that induced labour may be more painful than spontaneous labour. Discuss the available pain relief options in different settings with women. During induction of labour, provide women with the pain relief appropriate for them and their pain as described in the NICE guideline on intrapartum care. This can include simple analgesia, labour in water and epidural analgesia.

11. Induction method

- The preferred method of induction of labour if the cervix is unfavorable is administration of Propess® vaginal pessary for 24 hours
- If the cervix is favorable Propess® is not needed and induction is commenced by artificial rupture of membranes (labour ward/delivery suite)
- A cervix may be considered unfavorable when the Bishop Score is ≤7 but may be considered favourable if >6 with evidence of uterine activity when considering an amniotomy

Be aware that the available evidence does not support the following methods for induction of labour:

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

11.1. Induction with Propess®

- Propess® 10mg vaginal preparation is inserted into the posterior fornix
- Insertion may be directly following removal from the freezer, there is no need to wait
- If the Propess® pessary falls out and has remained clean, i.e. dropped onto clean bed sheets and not on the floor or in the bathroom, it may be reinserted on one occasion and used up until ready to be removed. If a Propess falls out for a second time then this Propess must be discarded and a new one may be inserted (this will not affect the assessment removal time, which will remain at 24 hours from the first Propess insertion).
- If it is not possible to re-insert due to contamination, a new one may be inserted with removal/assessment not affected (24 hours after first insert).

11.2. Contra-indications for Propess®

Absolute contra-indications:

- Suspicion of placental abruption
- Placenta praevia
- Fetal compromise
- Previous uterine rupture

Use with caution and after a consultant agreement

- High parity
- Uterine scar / previous uterine surgery
- Significant/ acute medical co morbidity

11.3. Propess® side effects

- Nausea
- Vomiting
- Diarrhoea
- Maternal pyrexia
- Uterine hyper stimulation

11.4. Inserting Propess



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 90° 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.

- The excess tape outside the vagina may be inserted into the vagina to prevent accidental removal of the Propess® insert when the woman removes underwear to go to the toilet for example.
- The woman should be advised to take extra care not to pull the insert out accidentally when going to the toilet or bathing, and be advised against excessive use of soap
- Experience from clinical trials suggest that dinoprostone release from the Propess® insert is unaffected by bathing or showering.

11.5. Assessment of maternal and fetal wellbeing during induction

A full assessment of fetal and maternal wellbeing including a plan of care to be completed (in case of outpatient induction for woman to come in) in case of (list is not exhaustive):

- Regular painful contractions
- Signs of persistent abdominal pain
- Any vaginal bleeding

- Ruptured membranes
- Propess® falls out or drops lower in the vagina

Assessment of fetal wellbeing

- CTG to be carried out prior to insertion of Propess® and Prostin®
- The CTG should be continued for a minimum of 30 minutes following insertion of Propess® and Prostin®. If this meets the criteria of a normal, reassuring trace it may then be discontinued.
- If there is any uncertainty regarding discontinuation of CTG refer to a senior clinical midwife or obstetric registrar
- Assure a plan is documented for the assessment of fetal wellbeing (indications for CTG monitoring as per Fetal monitoring guideline) during induction of labour in the labour note booklet
- Intermittent auscultation at 12 hours following Propess® (inpatient setting) and CTG as part of the 24 hours review for low risk inductions (no indication for CTG during labour as per Fetal monitoring guideline) that meet <u>ALL</u> the following criteria:

□ <u>Uncomplicated</u> pregnancy requiring induction of labour for prevention of prolonged pregnancy or for other low risk reasons (e.g. social reasons, SPD)

- \Box <42 weeks gestational age
- □ Age ≥18 years
- □ BMI <40 in 3rd trimester
- $\hfill\square$ Number of previous births is < 4 and NO previous LSCS
- All other inpatient inductions for 6 hourly CTG monitoring

Additional indications for CTG monitoring at any time during induction are (list is not exhaustive):

- Abnormal FHR pattern on IA (see guidelines: Fetal Monitoring in labour (F2)).
- Intravenous Oxytocin administration (either for IOL or for augmentation of labour).
- SROM commence CTG minimum of 30 minutes. If this meets the criteria of a normal, reassuring trace it may then be discontinued in the absence of regular painful contractions
- Maternal pyrexia (maternal temperature >38°C on one occasion or >37.5°C on two occasions two hours apart).
- Regular painful contractions (3 in 10 minutes)
- Signs of persistent abdominal pain
- Any vaginal bleeding

Assessment of maternal wellbeing

- Women who are induced with no other maternal risk factors require 12 hourly observations until in established labour (with the exception of those at home as part of their outpatient induction)
- Women with maternal risk factors will require 4 hourly observations

11.6. When to remove Propess®

Propess[®] should be removed after 24 hours irrespective of whether cervical ripening has been achieved.

Propess[®] should be removed immediately in the following instances:

- Where cervical dilatation has reached 4 cms
- Significant PV bleeding
- Uterine hyperstimulation or hypertonic uterine contractions (see section below for definition and management)
- Evidence of fetal compromise
- Evidence of maternal adverse dinoprostone effects
- At least 30 minutes prior to starting an intravenous infusion of oxytocin

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 the labour note booklet.

11.7. Spontaneous rupture of membranes with Propess® in situ

- In case SROM, commence CTG minimum of 30 minutes. If this meets the criteria of a normal, reassuring trace it may then be discontinued
- In case of regular uterine activity, perform a VE to assess if labour is established
- In the absence of regular uterine activity or if labour is not established, Propess® can be left in situ as per plan.
- Alternatively, the Propess[®] can be removed and an oxytocin infusion commenced 30 minutes later.
- Maternal observations should be recorded 4 hourly.

12. Management 24 hours after Propess® insertion if pessary still in situ

24 hours after insertion of Propess®:

An assessment including VE should be carried out by suitably competent midwife/doctor with a view to ARM:

- Remove Propess®
- If cervix favourable for ARM: ARM to be carried out on labour ward, followed by Oxytocin infusion (see paragraph 13 below)
- If cervix unfavourable for ARM: request assessment by registrar or consultant.
- * assure labour ward has capacity for accepting this woman prior to VE with aim to ARM.

Cervix found unfavourable for ARM:

- An assessment including VE to be carried out by obstetric registrar or consultant **
- Insert Dinoprostone (Prostin®) gel (unless contraindicated***) if unable to ARM

*** Dinoprostone (Prostin®) gel should not be used:

- for previous uterine scar like Caesarean section, myomectomy
- if there has been spontaneous rupture of membranes

•

- if at point of assessment to insert there are regular painful contractions:
 - discuss with senior obstetrician whether delayed administration and reassessment in 2 hours, or an ARM may be more appropriate

 if there is no longer regular painful uterine activity and an ARM cannot be performed, Dinoprostone (Prostin®) gel may be administered as indicated

Dinoprostone gel:

Nulliparae:

Bishop score	Dose of Dinoprostone advised
< 5	2mg
≥ 5 but not suitable for ARM	1mg

- 1. Vaginal examination by Obstetric Registrar or consultant:
 - ARM followed by Oxytocin infusion as per paragraph 13
 - If not suitable for ARM insert 1-2mg Dinoprostone as per table
- 2. Vaginal examination by Obstetric Registrar or consultant 6 hours after first dose Dinoprostone:
 - Repeat step 1
- 3. Vaginal examination by Obstetric Registrar or consultant 6 hours after second dose:
 - ARM followed by Oxytocin infusion as per paragraph 13
 - If not suitable for ARM: see 10.1 unsuccessful induction with prostaglandines (maximum of 4mg)

Multiparae:

- 1. Insert 1mg Dinoprostone gel
- 2. Vaginal examination by Obstetric Registrar or consultant 6 hours after first dose Dinoprostone:
 - a. ARM followed by Oxytocin infusion as per paragraph 13
 - b. If not suitable for ARM insert 1mg Dinoprostone (2mg may be considered if no change with 1mg)
- 3. Vaginal examination by Obstetric Registrar or consultant 6 hours after second dose:
 - a. ARM followed by Oxytocin infusion as per paragraph 13
 - b. If not suitable for ARM: see 10.1 unsuccessful induction with prostaglandines (maximum of 3mg)

12.1 Unsuccessful induction with prostaglandines

The definition used by NICE for unsuccessful induction with prostaglandin is "the failure to induce progressive labour after one cycle of treatment". In line with this guideline this means the cervix is not favourable to perform an ARM following the insertion of one Propess[®] for 24 hours followed by 2 doses of Dinoprostone gel (unless contraindicated).

Management:

- An assessment should be carried out by obstetric registrar or consultant for all unsuccessful IOL with prostaglandins
- If induction of labour has failed, the clinical circumstance should be fully reassessed and an individual management plan made.
- The woman should be informed about her choices and supported:
 - Delivery by Caesarean section.
 - Second attempt of IOL may be considered only at the discretion of a consultant in some cases in which case a management plan is to be clearly agreed and documented including rest time, frequency of CTG monitoring during this rest time.

If opted for a CS:

- Implications of a CS for future pregnancies and possible fertility issues must be discussed and documented.
- If there is a delay between the decision to deliver by Caesarean section and its execution, the woman should be examined vaginally in case there have been significant cervical changes in the interim

13. Induction with Foley's catheter (QHB site only)

This is a non-pharmacological method of induction of labour where birth is not urgent and cervix is unfavourable for artificial rupture of membranes. This option is considered only after discussing with the consultant

Indications:

- Previous caesarean section planned for vaginal delivery
- Hyperstimulation after propess

Contraindications:

- Any contraindication for vaginal delivery
- Rupture of membranes
- Any active genital infection excluding thrush
- Previous myomectomy/classical/inverted T incision
- Invasive cervical cancer

The technical details of foley's induction is included in Appendix D

14. <u>Amniotomy and Oxytocin infusion</u>

- Amniotomy is performed with amnihook if the fore waters are reached with relative ease after propess/foley's balloon induction or if cervix is considered favorable.
- Oxytocin should not be started for 30 minutes following removal of Propess®
- There is no need to delay commencing oxytocin following ARM unless there is background risk that increases hyperstimulation
- Please consider if the patient has any risk factors for infection and if so consider intrapartum antibiotics. <u>Click here for guidance on Antibiotics regimes in obstetrics</u>

Before amniotomy and oxytocin:

- Obtain verbal consent and explain the procedure
- Apply caution in order to prevent cord prolapse
- Observe and document the amount and colour of liquor
- Commence CTG and record V/E findings
- Commence oxytocin as per protocol

Reducing the risk of cord prolapse during amniotomy:

- avoid pushing the fetal head upwards during amniotomy
- if the fetal head is high, reassess whether amniotomy can be safely performed. Consider controlled amniotomy by senior obstetrician
 - o with an assistant stabilizing the head
 - \circ with arrangements in place for immediate recourse to theatre if cord prolapse is encountered

14.1. Use of Oxytocin

- In the presence of intact membranes, an amniotomy should be performed prior to commencing oxytocin infusion.
- Once oxytocin has been started, progress of labour should be assessed 6 hourly from starting oxytocin or 4 hours of regular contraction 4 in 10 and carefully recorded on the partogram and the labour records.
- Monitoring and recording of the duration, strength and regularity of uterine contractions should be performed every 30 minutes.
- Prior to commencing Oxytocin a discussion with the woman needs to take place with discussion documented, to include:
 - o Information that oxytocin will increase the frequency and strength of their contractions
 - o Their baby should be monitored continuously by CTG
 - o Discussion of the option of epidural for pain relief

14.2. Oxytocin infusion regime

The oxytocin regime is the same if used for augmentation or for induction of labour.

- See Appendix E for the infusion rate of oxytocin (site specific)
- The time interval between incremental increase should be every 30 minutes
- The oxytocin infusion rate should be kept under minimal possible dose in order to achieve good contractions at a frequency of 4 contractions in 10 minutes
- A reduction in the infusion rate may be indicated as labour progresses.
- In cases of severe pre-eclampsia, restricted fluid regime should be followed
- If there is 2cm or more progress in cervical dilatation between the vaginal examination in 4 hour interval, the next vaginal examinations should be advised 4-hourly
- Near to full dilatation it would be more usual to reassess in 1-2 hours

Oxytocin for delay in first stage of labour

- A delay in <u>established</u> first stage of labour is <u>suspected</u> when the cervical dilatation is:
 - For nulliparous women: less than 2 cms progress in 4 hours
 - For parous women: less than 2 cms in 4 hours or slowing in the rate of progress
- If suspected delay in first stage:
 - o Offer women support, hydration and effective pain relief
 - o Offer amniotomy if membranes are intact
 - Review by registrar
 - Discussion with consultant in case of previous caesarean section or history of previous shoulder dystocia,
- Repeat examination in two hours for all cases of suspected delay, (whether amniotomy is performed or membranes already ruptured):
 - A delay in first stage of labour <u>is diagnosed</u> if less than 1cm progress in 2 hours
- Other aspects of labour to be assessed include:
 - o descent and rotation of the head
 - \circ changes in the strength, duration and frequency of the uterine contractions
- In a nullipaurous women, commence oxytocin after discussion with obstetric team.
- In parous women, a full obstetric review including abdominal and vaginal assessment should take place before commencing oxytocin.

- <u>Augmentation of a woman with a history of previous Caesarean section or shoulder dystocia</u> <u>should only be decided at consultant level.</u>
- Further vaginal assessment should be performed 4 hourly

14.3. Oxytocin in second stage of labour

- Delay in second stage is suspected if baby is not delivered after:
 - o two hours of active pushing in nulliparous women
 - \circ $\,$ one hour of active pushing in parous women including women with previous caesarean section.
- Oxytocin should not be <u>commenced</u> for delay in second stage unless discussed with consultant
- A reduction in the infusion rate may be needed in second stage of labour for women who are already on oxytocin infusion, therefore the strength and frequency of contractions as well as fetal wellbeing should be closely monitored

15. <u>Complications of induction of labour</u>

15.1. Hyperstimulation

- Tachysystole: >5 contractions in 10 minutes for at least 20 minutes with normal CTG
- Hypertonus: painful contraction lasting for 90 seconds with normal CTG
- Hyperstimulation: Tachysystole or Hypertonus with abnormal CTG

If uterine hyperstimulation occurs during induction of labour:

- carry out a fetal assessment
- do not administer any more doses of medicines to induce labour and remove any vaginal pessaries or delivery systems if possible
- consider tocolysis.

Hyperstimulation with Oxytocin:

Oxytocin infusion rate to be reduced or stopped:.

- If the CTG tracing is <u>normal</u> and contractions are greater than 4:10 the oxytocin infusion should be halved.
- If the CTG tracing is <u>suspicious</u> and contractions are greater than 4:10 halve oxytocin infusion and tracing must be reviewed by a obstetrician

If the CTG tracing is pathological stop the oxytocin infusion immediately and a full assessment of fetal condition should be made by a specialist registrar or Consultant

15.2. Uterine rupture

Propess and oxytocin (when used for augmentation) should be used with caution in women at risk of uterine rupture including previous caesarean section and grand multiparous women.

If uterine rupture is suspected during induced labour, carry out an immediate category 1 caesarean birth. See the NICE guideline on caesarean birth.

16. Delays to commencement of IOL

In the event of a delay for IOL e.g. due to unit activity, it is the responsibility of the coordinating Suitable for printing to guide individual patient management but not for storage Review Due: July 2026 midwife and obstetric registrar/consultant to assess the woman's clinical situation, to include the indication for induction as well as maternal and fetal wellbeing.

The decision must be made as to whether it is appropriate to delay the induction or not and document a plan of care. Discussion will take place with the woman and she must be informed of further delay.

17. Monitoring Compliance and Effectiveness

- Regular monitoring of reasons for induction in case of <39 weeks gestational age in line with Saving Babies Lives care bundle
- Monitoring of outpatient inductions
- Monitoring of safety and effectiveness related to introduction of Prostin gel following Propess pessary
- Audit as per agreed business unit audit forward programme

18. <u>References</u>

Inducing labour. NICE guideline NG207 published November 2021

Midlands Region Induction of Labour Framework 2023

Boulvain, M., Irion, O., Dowswell, T., & Thornton, J. (in press). Induction of labour at or near term for suspected fetal macrosomia. Cochrane Database of Systematic Reviews

Insertion of a double balloon catheter for induction of labour in pregnant women without previous caesarean section, NICE Interventional procedure guidance July 2015

Royal Derby Hospital

- In case induction planned to take place on labour ward: women should be admitted to the maternity unit between 08:00 and 18:00 in 2 hourly slots.
- In case induction planned to take place on ward 314: see separate operational document
- The consultant or registrar will review the woman and the appropriate method of IOL will be decided.
- The Induction section on Lorenzo is to be completed by the midwife caring for the inductions with specific attention to reason(s) for induction especially when inducing prior to 39 weeks

	Outpatient induction of	checklist		
Inclusion criteria				
 Uncomplicated pregnancy requiring induction of labour for prevention of prolonged pregnancy up to 41⁺⁰ weeks gestational age (offer all at 41+0) Or Uncomplicated pregnancy requiring induction of labour for other low risk reasons as per discretion of consultant (GA 38-41⁺⁰⁾ Woman chooses outpatient induction Woman has ability to communicate with labour ward staff Capacity to consent Age ≥18 years BMI <40 in 3rd trimester Number of previous births is ≤ 4 and NO previous LSCS Access to a functional phone No child protection plan (safe guarding issues to be considered) Adult birth partner present Own transport and lives within 30 minutes driving time to the Royal Derby Hospital or Queens Hospital Burton 				
Suitable for outpatient induction of la	abour: 🗌 Yes 🗌 No			
Date / time:				
Name:	Designation:	Signature:		
Mobilising post Propess ® insertie	on			
Woman advised to mobilise for 1 hor Date / time:	ur following a <u>normal</u> CT(-G: □Yes □No:		
Name:	Designation:	Signature:		
Discharge checklist				
 Maternal observations checked, d Fetal heartbeat auscultated for > 6 Enquired about uterine activity, fet Confirm outpatient induction proce Obtain a current telephone number Advise the woman that the induction Provide the woman with an appoin Provide clear verbal consent and s When to contact the hospital How to contact the hospital in 	ocumented and within ho 50 seconds, documented tal movements, SROM ar ess is clear and gain cons er on midwife will phone ap ntment for 24 hours follow written instructions (refer	d and within normal range and vaginal bleeding. Reassuring. Insent pproximately 6 hours after discharge to PIL) including: to call		
Suitable for printing to guide individu	ual patient management l	but not for storage Review Due: July 2026		

Remains suitable for out	tpatient induction of labour and discharge	d home: 🗆 Yes 🛛 No 📄 other:	
Date / time:			
Name:	Designation:	Signature:	
6 hours post discharge	e contact	Date / time:	
Enquired about wellbe	eing, uterine activity, fetal movements, SF	ROM and vaginal bleeding. Reassuring.	
☐ Woman confirmed she home	e is aware when she is expected to come	back into hospital if labour does not sta	rt at
Remains suitable for out	tpatient induction of labour and discharge	d home: \Box Yes \Box No (advised to com	е
in)			
Name:	Designation:	Signature:	

Appendix C

Bishops Score	Cervix			Presenting part		••	
	Length	Dilatation	Consistency	Position	Station		
0	>4 cm	<1 cm	Firm	Posterior	-3		
1	2-4 cm	1-2 cm	Medium	Mid position	-2		
2	1-2 cm	3-4 cm	Soft	Anterior	-1, 0		
3	<1 cm	≥4 cm	***	***	+1, +2	TOTAL	Date/time
Score							
Score							
Score							

1stround Propess® Insertion	Date/time:			
Name:	Designation:			Signature:
Care plan during induction				
Suitable for outpatient induction:	Yes 🗆 No			
Fetal monitoring plan and frequency	/:			
Name:	Designation:			
Signature:	200.g. 10.10.11			
In the event Propess® falls			,	
out				
Date/time loss noted:		Seen	🗆 Yes 🗆 No	
Name	Designation			Signature
Date/time replaced (or n/a)			☐ Not replaced	
Name	Designation			Signature
IF unable to find Propess	s® on subsequ	ient examina	ations, escalate to	Senior Obstetrician

Propess® Removed	Date/time:		
Name	Designation	Designation Signature	
1ª Prostin® Insertion	Date/time:	Dose	mg
			5
Name:	Designation:	Signature:	
Changes to care plan:			
Fetal monitoring plan and free	quency:		
Name:		Designation:	
Signature:			
2 nd Prostin® Insertion	Date/time:	Dose	mg
Name:	Designation:	Signature:	
Changes to care plan:			
Fetal monitoring plan and free	quency:		
	-		
Name:		Designation:	
Signature:			

Induction with Foley's Catheter (QHB site only)

Appendix D

This is not a pharmacological method of induction of labour when birth is not urgent and the cervix is unfavorable for artificial rupture of the membranes. This should be offered only after discussion with the consultant.

Indications

- Previous caesarean section planned for vaginal delivery
- Hyperstimulation after Propess

Contraindications

- Any contraindication for vaginal delivery
- Rupture of membranes
- Any active genital infection excluding Thrush
- Previous myomectomy/classical/inverted T incision
- Invasive cervical cancer

Equipment

- Bi-valve Cusco speculum
- Rampley's sponge holder
- 16 gauge Foley's catheter (30ml balloon capacity) and spigot
- Sterile water 30ml
- Syringe 10 or 20ml
- Lubricating gel
- Tape
- Sterile water and gauze for pre-wash

Procedure:

Perform the maternal and fetal assessments as mentioned for induction with propess.

1)Prepare the equipment on a cleaned trolley, attend to hand hygiene and don sterile gloves.

2) Using an aseptic non-touch technique, cleanse the vulvo-vaginal area with sterile saline / water and cotton balls or gauze.

3) Insert the speculum. Visualise the cervix.

4) Pass the Foley catheter through the internal os of the cervix, using the sponge forceps to assist. Approximately 5 cm of the catheter tip needs to be inserted to ensure that the balloon is past the internal os.

5) Inflate the balloon with 30 mL sterile water.

6) Spigot the catheter.

7) Gently withdraw the catheter until it rests at the level of the internal os. Remove the speculum. Placement may be confirmed with a vaginal examination.

8) Remove gloves and perform hand hygiene.

9) Apply traction to the catheter and tape it to the inner aspect of the woman's thigh .

10) Assess the fetal heart rate after the procedure. Monitor with CTG for 20 minutes

11) Document in the patient's medical records & notify medical staff of any concerns .

Monitoring for fetal well being:

- The CTG should be continued for a minimum of 20 minutes following insertion of the catheter. If this meets the criteria of a normal, reassuring trace it may ten be discontinued.
- Fetal assessment should then be made via Intermittent Auscultation (IA) at 12 hourly intervals unless there is additional concerns for frequent monitoring on the advice of the consultant.
- Other indications for CTG during induction are fresh vaginal bleeding, draining liquor, contracting regularly 3 in 10 minutes, increased abdominal pain, pyrexia, or concerns on intermittent ausculataion

Management After Insertion

1. The catheter may remain in situ for 12 -24 hours before medical review for removal & ARM .

2. If at any time the woman has spontaneous rupture of membranes or is experiencing contractions, she must be transferred to delivery suite and catheter removed.

3. If the catheter falls out post insertion, perform a vaginal examination. If the cervix is favourable, the woman will be transferred to the Delivery suite for amniotomy. If the cervix is still unfavourable, medical review should be requested

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INTRAPARTUM OXYTOCIN REGIME			
Dilution and infusion (Jan 2019)			
5IU Oxytocin made up to 50mls of 0.9% saline			
via syringe driver			
Time after	Oxytocin dose	Rate (ml/hr)	
starting	(mUnits/min) to		
(min)	document:		
0	1	0.6	
30	2	1.2	
60	4	2.4	
90	8	4.8	
120	12	7.2	
150	16	9.6	
180	20	12	
210	24	14.4	
240	28	16.8	
270	32	19.2	
Document dose in mUnits/min on partogram,			
NOT rate in ml/hour			

Queens Hospital Burton CONSIDER TO REMOVE IF NOW USING SAME PUMP AS RDH

1) The following regime may be used to induce labour or augment labour.

To 1 litre of Hartmanns solution add 10 units of Syntocinon.

Using this dilution the dosage given of Syntocinon is as follows:

0	00
6 mls per hour	(1 mU per min)
12 mls per hour	(2 mU per min)
24 mls per hour	(4 mU per min)
48 mls per hour	(8 mU per min)
96 mls per hour	(16 mU per min)

After discussion with Registrar

120 mls per hour (20 mU per min)

2) Patients on restricted fluid regime

Add 10iu Syntocinon to 49mls of Normal Saline Administer via a syringe driver rather than an infusion pump Using this dilution give the syntocinon as follows:

0.3ml per hour	(1 mU per min)
0.6ml per hour	(2 mU per min)
1.2 mls per hour	(4 mU per min)
2.4 mls per hour	(8 mU per min)
4.8 mls per hour	(16 mU per min)

After discussion with the Registrar

6 mls per hour (20 mU per min)

3) Rate of Infusion

In order to avoid over-stimulation the infusion rate should be increased at 30-minute intervals for patients in labour, grande multiparae, multiple pregnancy and those with a history of previous LSCS or rapid labour.

For patients not in labour and not in one of the above categories the infusion rate should be increased at 20-minute intervals.

The infusion rate should be increased until adequate contractions are obtained, 4 contractions every 10 minutes, up to a maximum of 96 mls per hour (equal to 16 milli units per minute).

4) Second Stage Labour

Multips who start Oxytocin in the **Second Stage of Labour** should be reviewed by the Consultant prior to commencing Oxytocin

Primip's who start Oxytocin in the Second Stage of Labour should have their case discussed with the Consultant

The **suggested rate** for starting Oxytocin in 2nd Stage Labour is:

Start at 12mls per hour (2 mU/ min) doubling the rate at 10-minute intervals to 96mls per hour (16 mU/min) unless directed differently by the Middle or Senior Grade Doctor

5) Calculation for Oxytocin Dosages

The above dosages of Oxytocin are calculated as follows:

- 1000 mls of fluid contains 10 units (10,000 mU) of Oxytocin
- 1 ml of fluid contains 0.01 units (10 mU) of Oxytocin (Physiological levels of Oxytocin in labour are between 2 - 5 mU/min)

Documentation Control

Reference		r:	Status: FINAL		Version: UHDB 2	
Last RDH version prior to merge						
Version	Date	Author		Reason and overview of changes		
7	Jan 2021	Miss S Chaudhry Gynaecologist Miss J Rowley –	r – Consultant Obstetrician &	New regime and introduction of le on the AN ward		
Last QHB	version	prior to merge				
UHDB ve	rsion foll	owing merge		I		
1	May 2021	Miss S Chaudhry – Consultant Obstetrician & GynaecologistMerged guideline. New pat information leaflet. Introduct Dinoprostone gelMiss M Thangavelu – Consultant Obstetrician, ACD QHBDinoprostone gel		eline. New patient eaflet. Introduction of e gel		
1.1	Dec 2021	Miss S Rajendrar	n – Consultant Obstetrician	Removed op	tion to leave Propess in	
2	Apr 2023	Miss S Raouf - C	onsultant Obstetrician / ACD	Main change to offer all women IOL at 40+0 to assure NICE compliance.		
2.1	July 2023	Raymond Devara	aj - CD	Amendment to outpatient induction		
2.2	Nov 2023	Lead Senior Midwife for Guidelines, Audit and Quality ImprovementTo ensure full compliance with Baseline Assessment Tool		Il compliance with essment Tool		
2.3	Jan 2024	Jen Rowley - con risk	sultant obstetrician lead for	Rewording to IOL criteria for the AN ward at RDH to ensure it is clear and in line with current practice.		
2.4	March 2024	Joanna Harrison- guidelines and au	Engwell - Lead midwife for Idit	Addition of gropess fallin antibiotics lin	uidance following a ng out. Addition of k.	
2.5	April 2024	Joanna Harrison- guidelines and au	Engwell - Lead midwife for Idit	Clarification only - no ratification required as no clinical changes		
Intended	Recipien	ts: All staff caring f	or women requiring induction of	labour		
Training and Dissemination: Cascaded through lead midwives/doctors; Published on Intranet; NHS mail circulation list. Article in Business unit newsletter.						
To be read in conjunction with the following: Epidural Anaesthesia guideline (E4) / Care of Women in Labour guideline (L2) Thromboprophylaxis guideline (T8) / Patient information – Your planned IOL						
Consultation with: Pharmacy						
Business Unit sign off: 02/05/2023:		off: 02/05/2023	: Maternity Guidelines Group - Miss S Rajendran – Chair			
19/06/2023: Maternity Governance Group - Mr R Devaraj						
Version 2.1: exceptional ratification - Guidelines group - Anuja Joshi - 24 th July 2023 Maternity Governance - Raymond Devaraj 24 th July 2023 Divisional sign off - 26 th July 2023			023			
		Version 2.2 Guidelines Maternity C Divisional	2: group - Anuja Joshi - 24 th Nov Governance - Raymond Devara sign off - 19/12/23	vember 2023 aj - 04/12/23		
		Version 2.3	3:			

	No amendments to clinical practice - just clarification made		
	Version 2.4: exceptional ratification as below: Guidelines group - Anuja Joshi - 6 th March 2024 Maternity Governance - Raymond Devaraj - 6 th March 2024 Divisional sign off - 6 th March 2024		
Notification Overview sen Divisional Quality Govern	t to TIER 3 ance Operations & Performance: 20/06/2023		
Implementation date:	10/07/2023 Version 2.1: 26/07/2023 V2.2 21/ 12/2023 V2.3		
Review date:	July 2026		
Key Contact:	Joanna Harrison-Engwell		