Worcestershire Acute Hospitals NHS Trust

Induction of Labour (IOL)

Key Document code:	WAHT-TP- 094	
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Approved by:	Maternity Governance Meeting	
Date of Approval:	21st August 2020	
Date of review:	15th November 2022	

Key Amendments

Date	Amendments	Approved by
21st August 2020	Amendment regarding midwifery students in years 2 & 3 administering prostaglandin under the guidance of a midwife	Maternity Governance Meeting

Introduction

Recent Cochrane review (involving 22 trials and over 9000 women) has found that a policy of induction of labour when compared with expectant management is associated with fewer perinatal deaths (RR 0.31%) and significantly fewer caesarean sections (RR 0.89%). The absolute risk is low, with the number needed to treat to prevent 1 perinatal death being 410. This review also found that induction of labour is associated with a reduction in certain neonatal morbidities e.g. meconium aspiration, with no statistically significant difference between the two groups with respect to neonatal admissions. Consequently, WHAT recommends that women with uncomplicated pregnancies be offered membrane sweep after 40 weeks with induction of labour by 40+12. This is in line with NICE guidance.

The process for induction of labour should be considered when vaginal delivery is felt to be the most appropriate route of delivery. The decision on timing and method of IOL should be made at consultant level. This guideline refers to all women who require induction of labour with specific guidance for the following:

- Prolonged pregnancy,
- Diabetes in pregnancy,
- Suspected fetal Macrosomia without maternal diabetes.
- Multiple pregnancy
- Pelvic Girdle Dysfunction
- Maternal request & history of precipitant labour
- Trial of induction of labour (TOL) after a caesarean section

Induction of labour is indicated when it is agreed that the fetus or mother will benefit from a higher probability of a healthy outcome than if birth is delayed. When booking IOL, a vaginal examination

should be performed to assess cervical status. If the patient is ARM'able, communicate this to the ward. At the time of booking IOL women should be informed that there may be a delay in commencing IOL depending on the activity in the delivery suite.
For Sweeping of membranes refer to Membrane sweeping guideline

Indications for induction of labour

a. Prolonged pregnancy

Current evidence suggests that women should be delivered by 40^{+14}. Such a policy is associated with reduced perinatal morbidity and mortality although the absolute risk is small.

There is no increase in instrumental delivery rate, caesarean section, use of epidural analgesia or fetal heart rate abnormalities during labour with routine policy of IOL for post-dates.

In WAHT women with uncomplicated pregnancies may be offered membrane sweep at 40 weeks and then IOL by 40^{+12}.

Women who decline IOL for prolonged pregnancy
Epidemiological studies suggest increased risk of prenatal death beyond 42 (40^{+14}) completed weeks. Women who decline IOL for post-dates should be offered increased antenatal monitoring from 42 weeks in the form of alternate day CTG and a single USS estimation of amniotic fluid volume. However, data supporting this monitoring as a method of preventing sudden stillbirth are limited and this should be discussed with the women. These women should be discussed with their consultant.

b. Diabetes in pregnancy

The perinatal mortality rate is increased 4-5 times in pregnancies complicated with diabetes. In women with IDDM/Type II Diabetes/Gestational diabetes requiring insulin, IOL is recommended at 38-39 weeks. Earlier IOL depending on fetal growth, diabetic control and other complications may be indicated in individual cases and this should be a consultant decision. See guidelines on diabetes in pregnancy.

c. Maternal medical / fetal indications

For different maternal medical/fetal conditions (e.g. PET/Alloimmunisation/ IUGR) IOL may be booked at different gestations by the consultant in charge of woman's care. See the guidelines for PET, IUGR and reduced fetal movements.

d. Trial of vaginal birth after caesarean section (VBAC) and IOL

There is limited evidence available for the safety and efficacy of induction of labour in this group. However it would appear that rates of successful VBAC similar to those for spontaneous labour may be

achieved. The risk of uterine scar rupture is however greater Women who have never delivered vaginally are at the highest risk from uterine rupture following IOL.

- Timing and method of induction of labour should be decided at consultant level and documented carefully in the notes.
- IOL should occur in delivery suite
- Propess should be used with caution and only after discussing with the consultant.
- If cervix is favourable for amniotomy (ARM) it should be performed and if no progress or lack of uterine contractions after two hours oxytocin should be commenced.

e. Suspected fetal Macrosomia without maternal diabetes.

In the light of currently available evidence which suggests a reduction in the risk of clavicular fracture, IOL can be offered to women with large-for-gestational age (LGA) babies, even in the absence of diabetes, from 38 weeks. This decision should be taken in conjunction with the patient's wishes and after Consultant counselling.

f. Multiple pregnancy

Current evidence suggests that perinatal mortality increases at 40 weeks in twin pregnancy compared to singletons. In WAHT in uncomplicated diamniotic dichorionic (DCDA) twin pregnancies vaginal delivery may be considered if the presenting twin is cephalic presentation. IOL should be offered by 38/40. IOL for monochorionic diamniotic (MCDA) twin pregnancies can be offered by 36/40, but should be a Consultant decision on a case by case basis. Monochorionic monoamniotic (MCMA) twins should be delivered no later than 32/40 by LSCS.

See the guideline for multiple pregnancies.

g. Pre-labour rupture of membranes at term

Ideally transfer patients with PROM to delivery suite for augmentation with syntocinon. Propess® can be used following discussion with the consultant on-call.

At Term - *See rupture of membranes at term guidelines*

Women with PROM at term should be offered a choice of either immediate IOL or expectant management.

Expectant management should not exceed 96 hours following PROM. Follow guidance in SROM guideline

GBS positive women –. *See guidelines on GBS*

Preterm-prelabour rupture of membranes (PPROM) - *see PPROM guidelines*

Do not use Propess®. These patients should be augmented with syntocinon on Delivery Suite with continuous monitoring.

h. Maternal Request for IOL e.g. for precipitant labour

Staff is reminded that the Directorate does not support IOL for maternal request only. IOL for maternal request should be ONLY be considered when there are compelling psychological or social reasons. Ideally, woman requesting IOL should be seen by their named consultant. Such women may have to be called back to the clinic to be seen by the consultant if the consultant is not present in the clinic otherwise discuss it with the on-call consultant. IOL should not be offered for a history of precipitant labour.

i. Pelvic Girdle Dysfunction (PGD)/Symphysis Pubis Dysfunction (SPD)

SPD/PGD is not an indication for induction. The risks of IOL often outweigh the benefits in cases of SPD. However IOL may be occasionally offered to women in extreme pain who are severely limited in their mobility.

j. Medical Termination of Pregnancy for Fetal Abnormality or Intrauterine Death

See guideline *"Management of Medical Termination of Pregnancy using Mifepristone/Misoprostal for Fetal Abnormality or Intrauterine Death from 20 Weeks"*

k. Induction of labour for women age 40 and above

In order to reduce the risk of stillbirth, aim to admit women aged ≥40 years old for IOL by 40 weeks gestation.

Evidence suggests that such a policy would not increase the number of operative vaginal deliveries or emergency caesarean sections. All women for induction of labour should be offered membrane sweep prior to IOL.

Women who decline induction of labour

Women who decline induction of labour should be reviewed by an experienced obstetrician explaining the need for induction of labour and risks involved in prolonging the pregnancy. An individualised plan for maternal and fetal monitoring should be clearly documented in the notes if the patient still wishes to continue with the pregnancy.

Contraindication for IOL

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

Contraindications for use of Propess®.

- All of the above
- When labour has started
- When oxytocic drugs are being given
- A history of hypersensitivity to dinoprostone or the excipients
- When there is current pelvic inflammatory disease, unless adequate prior treatment has been instituted.

Propess® should be used with CAUTION in:

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

No clinical trials have yet been conducted to confirm the safety / efficacy of Propess® in the above mentioned conditions, therefore Propess® should be used at consultant discretion, after careful counselling of the woman.

Note: Propess® has the advantage of constant, low dose release per hour over 24 hour period, ability to retrieve when required and has a short half-life,

Place of Induction

Membrane sweeping – Sweeping of the membranes may be carried out in the women's home or at a clinic.

Low risk induction – For low risk women IOL using Propess® can be carried out on the antenatal ward or potentially in the outpatient setting. See Outpatient IOL guidance.

High Risk women – For women recognised to be high-risk secondary to maternal or fetal factors, IOL may need to be carried out on Delivery suite. Decision on timing and method of IOL should be made at Consultant level.

Process of IOL

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

The release rate is approximately 0.3mg per hour over 24 hours in women with intact membranes, release being higher with pre-labour SROM

OXYTOCIN: See below for dosage / regimen

One of the common reasons in unsuccessful IOL is irregularities in incrementing oxytocin dose. Once oxytocin is commenced the protocol (see below) should be strictly followed as undue delay in incrementing the oxytocin dose renders it less effective and results in unsuccessful induction. Oxytocin should only be discontinued for definite indications e.g. abnormal/ pathological CTG or hypertonic uterine contractions.

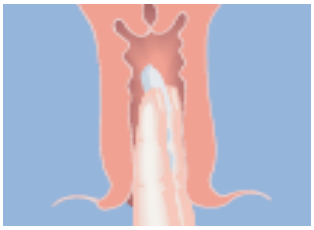
Use of Propess®

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

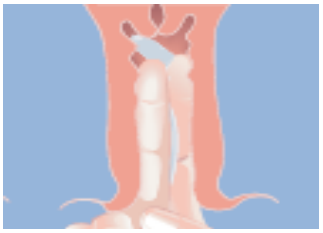
Insertion of Propess®

- Perform abdominal palpation to assess fetal lie, presentation and size.
- Perform vaginal examination and determine Bishop Score.
- Document findings of palpation and VE in notes and sign prescription chart.
- Perform CTG. If CTG is reassuring and cervix unfavourable for ARM insert Propess as per instructions below.
- If cervix is favourable transfer to delivery suite for ARM.

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



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



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

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

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

- If the Propess® insert falls out and has remained clean, i.e. dropped onto clean bed sheets and not dropped on to the floor or into the toilet it may be reinserted and used to the 24 hour limit.
- If it is not possible to re-insert the Propess® due to contamination, a new one may be inserted and used up to 24 hours after the insertion of the first Propess®.
- The excess tape outside the vagina may be cut and removed to prevent accidental removal of the Propess® insert when the patient removes underwear to go to the toilet for example. However, sufficient tape should be left to allow for easy removal when required. The woman should be advised to take extra care not to pull the insert out accidentally when going to the toilet or bathing.
- Experience from clinical trials suggest that dinoprostone release from the Propess® insert is unaffected by bathing or showering. The manufacturer advises against excessive use of soap and care should be taken not to pull the retrieval tape.

Student Midwife Role

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

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

- The student must sign the prescription chart and this is to be counter signed by the supervising midwife

Post Propess® insertion

1. Undertaken CTG for fetal well-being
2. Maternal observations

Prior to established labour

Maternal observations:

Maternal observations that should be carried out during induction prior to established labour include BP, temperature and maternal pulse. These observations should be checked at least once. The frequency of observations will depend upon clinical condition of the woman.

Fetal observations:

There is limited evidence as to the most appropriate protocol for fetal monitoring following vaginal prostaglandin administration in low risk pregnancies. However, NICE recommends that fetal wellbeing should be assessed with continuous electronic fetal monitoring when contractions begin after administration of vaginal prostaglandin. Once the CTG is confirmed as normal intermittent auscultation should be used unless there are clear indications for continuous electronic fetal monitoring.

See table below for intensity of necessary CTG monitoring prior to the onset of regular contractions once the process of induction has been commenced. If there are any abnormalities on the CTG, medical review is urgently required.

Daily CTG	**Twice daily CTG**
Routine post-dates	Growth <10th centile/Static growth on USS
Diet control GDM with normal size baby	Preterm <37/40
Maternal request	Elevated PI but normal EDF
Pelvic girdle dysfunction	Reduced fetal movements
Large for dates	PET/PIH
Polyhydramnios	SROM <37/40
Maternal Age	Oligohydramnios
	DCDA twins

	Diabetics on metformin or insulin
	Obstetric Cholestasis
	History of Antepartum haemorrhage resulting in decision for IOL– not actively bleeding

High risk women: Most women undergoing IOL with any obstetric or medical risk factor should be managed in the antenatal ward. Only women with need for intensive fetal or maternal monitoring need to be admitted to delivery suite for induction of labour e.g. unstable pre-eclamptics, grossly abnormal fetal dopplers i.e. absent or reversed EDF, possible maternal or fetal sepsis.

The woman should be instructed to inform the midwife if:

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

The occasional undesirable effects seen have been those normally associated with intravaginal dinoprostone administration. Gastrointestinal effects such as nausea, vomiting and diarrhoea have been reported.

A CTG is to be performed if the woman complains of any painful uterine activity or excessive uterine activity at **any** time. This can be discontinued after 30 minutes if CTG is reassuring.

When to remove Propess®

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

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

corrected e.g. tachycardia due to dehydration and vomiting following injection of opiates and/or local hypersensitivity reaction.

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

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

After 24 hours:

- Remove the Propess®
- Perform a CTG for at least 30 minutes
- Perform a VE to assess suitability for ARM
- If suitable for ARM, transfer to Delivery Suite for ARM and/or oxytocin
- Oxytocin can be commenced 30 minutes after removal of Propess®
- If unsuitable for ARM, refer for senior medical vaginal examination and management plan by Consultant on-call.

Document within the intra partum records the date and time of insertion and removal of the Propess®.

Management of Hyperstimulation

Hyperstimulation = Tachysystole (i.e. contracting >5:10) with abnormal CTG

- If any hyperstimulation is suspected CTG monitoring should be commenced immediately.
- The shift coordinator/ obstetric registrar must be informed.
- If the woman is NOT in established labour and the fetal heart is normal DO NOT remove pessary, CTG should be continued as long as there is evidence of uterine hyperstimulation.
- If CTG is pathological the Propess® should be removed and the registrar informed immediately. Terbutaline 250 micrograms s/c should be considered, however due to the short half-life of dinoprostone and the low dose released per hour, the hyperstimulation should resolve spontaneously in 15 – 20 minutes.
- If the CTG improves following removal of Propess®/ tocolysis perform vaginal examination and attempt to perform ARM and consider augmentation with oxytocin. A further Propess® should not be inserted in such a case.

Spontaneous rupture of membranes with Propess® in situ

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

Recommendations on unsuccessful induction of labour after 24 hours

The decisions regarding further management must be made by the on-call consultant in accordance with the women's wishes and with regard to the clinical circumstances. A full assessment of the pregnancy in general, the woman's condition and fetal wellbeing using electronic fetal monitoring (EFM) should be made, as well as a repeat vaginal examination by a senior doctor to confirm cervical findings.

Options for subsequent management are:

- Delivery by caesarean section

If there is a delay between the decision to perform LSCS and its execution, the woman should be re-examined vaginally in case there have been significant cervical changes in the interim.

- Review by the on-call Consultant: query for further cycle of Propess®.

Oxytocin for induction or augmentation of labour

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

- The individual management plan about the decision to commence Oxytocin should be documented on K2 when Oxytocin commences.
- For dose schedules including frequency of increment see below. One of the common reasons in unsuccessful IOL is irregularities in incrementing oxytocin dose. Once oxytocin is commenced the protocol (see below) should be strictly followed as undue delay in incrementing the oxytocin dose renders it less effective and results in unsuccessful induction. Oxytocin should only be discontinued for definite indications e.g. abnormal/ pathological CTG or hypertonic uterine contractions.
- For fetal monitoring in labour refer to the guideline

- Maternal monitoring: The frequency of observations will depend upon clinical condition of the woman. As a minimum requirement maternal pulse should be checked every hour and BP, temperature every 4 hours.

When should oxytocin be stopped?

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

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

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

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

Oxytocin Regimen

Induction with oxytocin

- Treatment regimes: milliunits per minute not milliltres per minute
- 1 millilitres/hr = 1 milliunits/min
- Deliver via either syringe driver or infusion pump with non-return valve
- Oxytocin performance optimised with ruptured membranes

Oxytocin (in the presence of ruptured membranes)

Time after Starting (minutes)	Dose delivery (milliunits/ minute)
0	1
30	2
60	4
90	8
120	12
150	16

- Most women should have adequate contractions at 12 milliunits per minute
- Trials have used doses up to 32 milliunits per minute
- Maximum licensed dose is 20 milliunits per minute

Worcestershire Royal Hospital
Dosage: 6 units in 50 mls normal saline

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

NB: Using normal saline infusion.

NB: For patients with severe PET / Cardiac patients – refer to WRH regime

Guidance for booking arrangements and managing capacity for Induction of Labour

- No more than 6 inductions are to be booked through the antenatal ward in a 24 hour period at Worcestershire Royal Hospital. These are to include ARMs.
- Inductions booked by Community Midwives are to be phoned directly to the Antenatal ward and entered into the induction diary. Under no circumstances should Community Midwives enter them into the book directly.
- When the induction is booked women must be asked to phone the antenatal ward or delivery suite at 8am to determine if there is a bed available and at what time they should attend.

- Aim to admit women suitable for ARM directly to labour ward
- Each day, after the 08:00 ward round the on-call Consultant Obstetrician and the Band 7 Labour Ward Coordinator must review all inductions for the day. They should discuss these with the antenatal ward to establish capacity to enable the inductions to be performed. If capacity is reduced please refer to attached flow chart.
- Inductions of labour from the previous day must also be reviewed to establish that these were performed not delayed and to ascertain the outcome. This process is to ensure that no inductions are overlooked or delayed unnecessarily.
- If after discussion with the on-call Consultant there are serious concerns regarding the number of inductions pending and the Units capacity please escalate this to the Maternity Matron or Senior Manager.
- Inductions of labour for non-obstetric reasons (only required in exceptional circumstances) should only be a consultant decision. In such cases name of the consultant sanctioning the IOL and indication should be clearly documented in the health records. If there is no consultant present in the clinic, it should be discussed with the on-call consultant.
- Offering membrane sweep and performing Bishop Score prior to booking IOL are part of the IOL procedure.
- Elective IOL should be offered a membrane sweep and Bishop Score prior to coming for IOL. If a woman is less than 40 weeks this may have to be done in antenatal clinic or day assessment unit. If the woman is preterm the obstetrician may have to do the sweep themselves. If you book IOL antenatally in advance then make sure that appropriate follow up is in place for sweep in addition to the date of IOL.

Algorithm for management of delay