Guideline for Induction of Labour

Contents

Section 1 – Abbreviations

AFE	amniotic fluid embolism
AFI	amniotic fluid index
ANC	antenatal clinic
APH	antepartum haemorrhage
ARM	artificial rupture of the membranes
ART	assisted reproductive technology
BLS	basic life support
BS	Bishop Score
CEFM	continuous electronic fetal monitoring
CMW	community midwife
CS	caesarean section
CTG	cardiotocography
DCDA	dichorionic diamniotic
DCU	daycare unit
DM	diabetes mellitus
DVP	deepest vertical pool
EDD	estimated due date
ERCS	elective repeat caesarean section
FGR	fetal growth restriction
FH	fetal heart
GBS	Group B Streptococcus
IBD	inflammatory bowel disease
IDDM	insulin-dependent diabetes mellitus
IOL	induction of labour
IUD	intrauterine death
IVF	In-vitro fertilisation
LV	liquor volume
MCDA	monochorionic diamniotic
mcg	micrograms
ml	millilitres
NHSL	NHS Lanarkshire
NND	neonatal death
OC	obstetric cholestasis
PAPP-A	pregnancy-associated plasma protein A
PDIOL	post-dates induction of labour
PE	pulmonary embolism
PET	pre-eclamptic toxaemia
PID	pelvic inflammatory disease
PP	presenting part
PPROM	pre-labour premature rupture of membranes
PROM	pre-labour rupture of membranes
RFM	reduced fetal movements
SB	stillbirth
SC	subcutaneous
SD	shoulder dystocia

SPD	symphysis pubis dysfunction
SRM	spontaneous rupture of the membranes
T	term/estimated due date/40+0
T1DM	Type 1 diabetes mellitus
T2DM	Type 2 diabetes mellitus
UAD	umbilical artery doppler
UHW	University Hospital Wishaw
USS	ultrasound scan
VBAC	vaginal birth after caesarean section
VE	vaginal examination
VTE	venous thromboembolism

Section 2 – Introduction

Induction of labour (IOL) is common and associated with increased intervention. Local data suggests a doubling of the caesarean section (CS) rate with IOL compared with spontaneous labour. IOL should not be confused with augmentation whereby labour progress is enhanced with administration of an oxytocin infusion.

Section 3 – Aims

- to provide a standard care pathway for women for whom IOL has been recommended.
- to provide all maternity staff with guidance on the indications for IOL, referral pathways and IOL processes.
- to prevent inappropriate IOL.

Section 4 – Indications

There are risks associated with any obstetric intervention. These must be balanced against both the benefits of intervention and the woman's wishes. The list below is neither absolute nor exhaustive. Women-centred discretion should be applied in each case with reference to the woman's individual circumstances and risk factors. Women being induced at <T+10 must have their case discussed with a senior obstetrician (associate specialist/consultant) and the decision documented on BadgerNet. The decision to intervene must be clear and clinically justified. This must include a plan for frequency of fetal monitoring. It is mandatory to obtain written consent when organising IOL. This is to be done by both midwives and doctors – see the specific IOL consent form.

4.1 Post-dates induction of labour (PDIOL)

- Women should be offered information about risks associated with pregnancies lasting longer than 42 weeks and their options should they choose to prolong their pregnancy.
- 70% of women will labour spontaneously between 41-42 weeks.
- The aim of delivery before T+14 is to avoid late stillbirth (SB). This occurs in 2-3/1000 pregnancies at 42 weeks.

- SB incidence:

1:2635 at 37 weeks	1:945 at 41 weeks
1:2284 at 38 weeks	1:525 at 42 weeks
1:1874 at 39 weeks	1:297 at 43 weeks
1:1368 at 40 weeks	

- IOL between T+10 and T+14 reduces perinatal mortality without increasing the caesarean section rate.
    - For those with uncomplicated pregnancies:
    - Please see section 6 for full information about organising IOL.

- Ensure accurate pregnancy dating (patient should have had scan in early pregnancy to accurately determine gestational age and give EDD (estimated due date)).
- There is no indication for routine tests of fetal wellbeing (scan or cardiotocography (CTG)) before T+14.
- Arrange routine community midwife (CMW) review in the local antenatal clinic (ANC) at approximately 41 weeks.
- Perform vaginal examination, document Bishop Score under vaginal examination tab in BadgerNet and perform cervical sweep.
- Offer the woman IOL at T+10.
- Contact maternity clerkess to make booking. Give EDD, Bishop score and BMI.
- If there is no space for IOL at T+10, book procedure for next available date. If this is > T+14, discuss with senior obstetrician.
- Routine PDIOL should be organised at the local ANC. Do not send to DCU (daycare) to organise IOL.

- For those declining routine PDIOL:
  - Refer to the named consultant clinic for review.
  - Explain risks of a prolonged pregnancy >T+14. Ensure the woman understands such risks and document the following:
    - Increased perinatal morbidity and mortality.
    - Neonatal convulsions.
    - Meconium aspiration.
    - 5 minute Apgar score of <4.
    - Macrosomia including risks of operative vaginal delivery, caesarean section and shoulder dystocia (SD).

- Arrange the following ≥ T+14:
  - CTG twice-weekly in day care.
  - Weekly scan for liquor volume (LV) and umbilical artery dopplers.
  - Delivery is indicated if there are any abnormalities detected in the umbilical artery dopplers or LV (DVP < 2cm).

- For those with uncertain EDD:
  - The above pattern of increased fetal surveillance is indicated for late bookers (>24w) with an uncertain EDD.
  - After appropriate post-dates CTG and scan, the woman should be reviewed in her consultant-led ANC whereby an individualised decision regarding IOL should be made.

- For those wishing vaginal birth after caesarean section (VBAC):
  - IOL is not recommended < T+10 (unless other risk factors).
  - Arrange a face-to-face review at consultant clinic from 41w for a VE and membrane sweep. Document the Bishop score under the 'vaginal examination' tab in BadgerNet.
  - Contact maternity clerkess, stating the patient's previous obstetric history, Bishop score and BMI.

- The use of vaginal prostaglandins is contraindicated. A Cooks balloon can instead be offered if the patient is keen for VBAC. However, in some circumstances a post-dates ERCS may be preferable eg. high head/ unfavourable cervix and /or if the woman has not laboured before. This is a consultant decision.

4.2 Other reasons

Age > 40 years		40 weeks (See below)
APH		Individualised by consultant
ART eg. IVF/ICSI		40 weeks
Diabetes	Type 1 and type 2 diabetes	Timing of delivery to be determined by Medical Obstetric clinic team
	Gestational Diabetics	Timing of delivery to be determined by Medical Obstetric/local Cons ANC
FGR		Refer to SGA guideline
GBS		Refer to GBS guidance
IUD	Previous	d/w consultant
	Current	d/w consultant See separate guideline
Hypertension		May be considered prior to Term
Macrosomia	≥ 97th centile	39 weeks
Multiple pregnancy	DCDA twins	37-38w
	MCDA twins	36-37w
	Higher order pregnancies	d/w twins consultant
Intrahepatic Cholestasis of Pregnancy (ICP)	Mild – Peak bile acids 19-39 µmol/L	40 weeks
	Moderate – Peak bile acids 40-99 µmol/L	38-39 weeks
	Severe – Peak bile acids >100 µmol/L	35 -36 weeks
PAPP-A	< 0.4 MoM Consistent growth	T+10 (if GAP is normal)
Post-dates		T+10
PET		d/w consultant
PPROM	≥ 34w	37 weeks
	< 34w	Individualised care plan
RFM (see below)	Abnormal USS/CTG	Consider need for immediate delivery – d/w consultant

	>40w Normal USS/CTG Additional risk factors	Offer IOL within 48h
	>40w Normal USS/CTG No risk factors	Increased fetal surveillance d/w consultant
	Recurrent RFM	See separate RFM guideline
SB	Previous	d/w consultant
	Current	d/w consultant see separate guideline
SPD		> 40 weeks when favourable
Term PROM	≥ 37w	Offer expectant management for up to 24 hours or immediate IOL
Thrombophilia		d/w MOT consultant consider from 38 weeks
VBAC		T+10

4.3 Specific considerations*:*

- Age ≥ 40:
  - Increased risk of SB.
  - IOL should be considered ≥ T.

- Hypertension:
  - Women with hypertension need not always be induced prior to Term.
  - Any decision to induce should be a made by a senior obstetrician and should preferably involve the relevant consultant. See NICE guideline.

- Reduced fetal movements (RFM):
  - There is no evidence to support IOL for RFM over fetal monitoring.
  - The decision for intervention needs to be individualised.
  - See separate guideline.

4.4 Contraindications to IOL

- Absolute
  - Fetal compromise.
  - Malpresentation (unless breech and woman fully counselled of risks and on call team agree). This would be exceptional.
  - Woman declines IOL.

- Relative
  - Previous uterine surgery.
  - Grand multiparity (para 6+).

- High presenting part (this is a consultant decision if controlled ARM thought likely) and is a contraindication to mechanical IOL.

4.5 Not considered for routine IOL

- Asthma, controlled.
- Epilepsy, controlled.
- Inflammatory bowel disease (IBD), controlled.
- Maternal request.
- Placenta (mature with normal scan otherwise).
- Polyhydramnios.
- SPD with unfavourable cervix
- Thyroid disease, controlled.

Section 5 – Cervical sweeps

- Sweeps involve digital separation of the membranes from the lower uterine segment during pelvic examination with a dilated cervix.
- All women being offered IOL should be offered a sweep prior to admission.
- The aim is to cause onset of spontaneous labour prior to any intervention.
- Sweeps significantly reduce the need for IOL and improve the BS.
- Sweeps increase local endogenous production of prostaglandins.
- Sweeps at the time of admission for IOL:
  - increase the SVD rate.
  - reduce induction-to-delivery intervals.
  - reduce oxytocin use.
  - Improve women's satisfaction with the IOL process.

- Risks:
  - maternal discomfort.
  - vaginal bleeding.
  - prolonged latent phase.
  - PROM.

- Contraindications:
  - Placenta praevia/vasa praevia.
  - Malpresentation.
  - High head.
  - Lack of consent.
  - ≥2 caesarean sections (unless woman has been specifically counselled about this and still opts for VBAC).

- There are insufficient data on the risks of sweeps in women known to be colonised with GBS the decision whether or not to undertake one should be based on individual clinical judgement.

- Performing a sweep:
  - Auscultate the fetal heart (FH).
  - Insert finger as high as possible through the internal cervical os.
  - Perform circular motion rotation of the finger, once clockwise and once anticlockwise.
  - If the internal os is closed, the cervical canal should be swept. Perform and document BS in *vaginal examination tab* in BadgerNet.
  - Auscultate the FH post-procedure.

Section 6 – Organising IOL

6.1 Choice of IOL method <u>(ALWAYS check for contraindications before booking)</u>

- Low-risk 0utpatient IOL – Cook's balloon.
- High-risk inpatient IOL – Cook's balloon or vaginal prostaglandins.

6.2 <u>Booking process</u>

- Give leaflets regarding IOL and cervical sweeps and signpost to patient information videos.
- Perform a vaginal examination (VE), formulate a Bishop score (BS) and document cervical favourability in BadgerNet under vaginal examination tab
- Give cervical sweep.
- Inform women that IOL is potentially a 2-step process as described on the IOL consent form.
- Review timing and indication for IOL if BS <6.
- If unfavourable, discuss surveillance/repeat VE/timing of IOL with consultant.
- Explore woman's opinions on which type of IOL is correct for her.
- Complete consent form for IOL. This should be completed by the health care professional booking IOL (midwife or doctor).
- If no contraindications, offer outpatient IOL with Cook's balloon as 1st line.
- If the woman declines mechanical IOL, inform clerkess when booking that she is for an inpatient induction with prostaglandins; on admission ask doctor to prescribe appropriate vaginal prostaglandins.

Section 7 - Outpatient IOL (Cook's balloon)

7.1 General principles

- NICE recommends the use of a double balloon catheter as a safe mechanical method of IOL noting no concerns about hyperstimulation or increasing caesarean section rates.
- NHS Lanarkshire therefore recommends its use as first line in suitable patients.
- If the woman consents to its use, contact ward clerkess to book appointment.
- Women should be allocated a 90 minute appointment time at an allocated time in a single room in ward 23. The procedure may be complete within an hour.
- A staff midwife should be specifically allocated to perform procedure.
- All staff members providing this service should have available a senior mentor until their competency is at an adequate level.
- If the woman requests to remain as an inpatient, this should be accommodated using the Cook's balloon. Vaginal prostaglandins can be offered as an alternative.

7.2 Equipment required

- 20ml luer-lock syringe
- 2 x 100ml bags of normal saline
- Cook's cervical ripening balloon
- Vaginal examination pack
- Sterile gloves
- Sterile cleaning solution
- Cusco speculum
- Lubricant

7.3 Prior to procedure

- Ensure correct patient ID.
- Ensure woman meets criteria for outpatient IOL.
- Verify reason for IOL and, if for anything other than routine PDIOL, ensure woman has had medical review and decision to induce is clearly documented on BadgerNet.
- Ensure the woman understands procedure, its aims, and has signed consent form.
- Give full explanation of procedure.
- Ensure adequate privacy and dignity.

- Perform CTG for 30 minutes and proceed only if reassuring.
- Place the woman in a semi-recumbent position with hands underneath buttocks.

7.4 Balloon insertion

- Locate cervix (digitally or with speculum).
- Advance the catheter through the cervix until both balloons have entered the cervical canal and passed the internal os. When the first balloon (uterine) is through the internal os, remove the stylet.
- Remove speculum (if used).
- Inflate the uterine balloon with 40mls of saline through the red Check-Flo valve (marked 'U') using the syringe.
- Pull balloon back until the uterine balloon abuts the internal os. The (deflated) vaginal balloon should now be visible/palpable in the upper portion of the vagina.
- Inflate the vaginal balloon with 20ml of saline through the green Check-Flo valve (marked 'V'), maintaining tension on the catheter.
- Once the balloons are correctly situated, add saline in 20ml increments up to a maximum of 80ml in each balloon.
- Auscultate the FH.
- There is no need for post-procedure CTG unless there are additional risk factors, if the woman begins to contract or if there are any other problems encountered like SRM, APH, RFM or constant severe abdominopelvic pain. If this occurs, remove the Cook's balloon and discuss with medical staff.
- Allow the woman to rest for half an hour.
- Observe for bleeding, SRM, fetal movements and discomfort.
- Ensure the patient voids urine prior to discharge
- Ensure woman has links to a written leaflet.
- Inform the woman of what to expect, what is not considered normal and ensure she has the relevant contact numbers in case of emergencies.
- If the woman remains well, she may go home.
- Document procedure on BadgerNet.

7.5 Balloon removal

- Deflate both balloons with luer-lock syringe.
- Slowly remove device from cervix.
- Perform VE to assess the BS.
- Encourage woman to adopt upright procedure.

- Auscultate FH.
- The balloon can be removed from up to 24 hours post-insertion. It should not remain in for greater than 24 hours.
- Give appointment up to 24 hours after balloon insertion for balloon removal.
- Following removal the Mother should mobilise within the unit.
- Wait at least 1 hour before performing ARM. There is no maximum time limit. Explain that ARM may be delayed due to clinical activity.
- Commence oxytocin immediately in primigravid patients and after 1-2 hours in parous women, unless the woman declines or wishes to wait for a defined period of time.
- Document on BadgerNet.
- Inform women that the IOL procedure may be halted if the cervix remains unfavourable for amniotomy or if there is a heavy workload. This needs to be discussed with the woman, the reasoning should be explained and this should be discussed with a senior obstetrician.

7.6 Risks

- Discomfort
  - Evidence supports Cook's balloon insertion being well-tolerated.
  - Most women report little discomfort during and after the procedure.
  - Halt the procedure if the woman is in too much pain.
  - Analgesia can be considered after discussion with medical staff.
- Abnormal vaginal bleeding
  - Halt the procedure, deflate and remove the balloon.
  - Inform medical staff.
  - Follow guidelines for APH.
- Vasovagal response
  - Pallor, sweating, bradycardia, loss of consciousness.
  - Usually associated with traction of the device against the cervix.
  - If this happens, remove some fluid from both balloons.
- If bradycardia persists or woman gives other cause for concern:
  - Halt procedure and remove the device if inserted.
  - Left lateral tilt.
  - Perform ABCDE.
  - Inform medical staff.
  - Monitor woman's vital signs.
- It is mandatory that all staff attend Basic Life Support (BLS) every 2 years.

- Infection:
  - Insufficient data to support a link between insertion of the Cook's balloon and maternal infection.
  - Inform woman of signs or infection and advise to call triage if there are any concerns.

- RFM:
  - Inform the woman to come in immediately.
  - Perform CTG.
  - If any CTG concerns, immediately remove balloon.
  - Contact medical staff if any CTG concerns.

7.7 Specific considerations

- VBAC – see section 4.1 PDIOL and Section 12
- Note VBAC's can have a Cooks balloon as OP IOL for Step One

7.8 Contraindications

- All high-risk IOL require inpatient management
- High head
- Malpresentation

7.9 Subsequent events

- Balloon falls out – if no other concerns, inform the woman to call and attend the unit for ARM within 2 hours if possible. In practice this may not be achievable in busy spells.

- SRM:
  - Assess over phone.
  - If the balloon is still in situ and there are no other concerns, the woman may stay at home and keep original appointment for assessment/conformation of SRM.
  - If the balloon has fallen out, inform the woman to attend the unit for further assessment and confirmation of SRM.

- If contractions start:
  - Assess over the phone.
  - If contractions are mild or irregular and there are no other concerns, follow guidance for management of the latent phase of labour.
  - Reassure the woman and reiterate that she can call back at any time for advice.
  - If the woman is thought to be in active labour, ask her to come in for assessment. If the balloon is in situ, remove and proceed with IOL process.

7.10 If unable to ARM after balloon is removed

- Inform senior medical staff.
- Offer the woman other IOL options.
- Usually this will involve use of vaginal prostaglandins.

7.11 Competency of staff performing procedure

- Before being allowed to perform the procedure, midwives must be supervised by a doctor or midwife who is competent at insertion.
- The decision to practice independently without supervision can be made between the midwife and their facilitator.

Section 8 – Inpatient Service – High risk

8.1 General principles

Inpatient IOL may be preferred by some patients over outpatient IOL. For inpatient IOL, either the Cook's balloon or vaginal prostaglandins can be offered.

- NICE recommends that IOL with vaginal prostaglandins is second line to mechanical methods.
- The vaginal prostaglandins currently in use in NHS Lanarkshire are Prostin E2 tablets or gel (Dinoprostone).
- NHSL currently uses prostin tablets (though prostin gel can be used if tablets are in short supply).
- NHS Lanarkshire no longer uses propess pessaries (Dinoprostone).
- Women must remain as inpatients for the duration of the IOL process if vaginal prostaglandins are used.
- Advise women that IOL with vaginal prostaglandins is a 2-step process and that the findings/indications may have changed by the time she is admitted.
- As for all types of IOL, a BS must have been calculated and recorded on BadgerNet under vaginal examination tab, and the reason for IOL must also be clearly available/documented.
- Aseptic technique for VE's and insertion of vaginal prostaglandins is not required.
- Hibitane should not be used.
- Administration intervals should be a minimum of 6 hours (see Appendix 1).
- The maximum dose of prostin tablets for primigravid and parous women is 9mg in 3 divided doses (1 x 3mg tablet) 6 hours apart (see Appendix 2). This is outside the BNF and manufacturer's recommendations which state a maximum of 2 doses. However, it is commonplace to use 3 doses if required, as seen in several trials and other trusts.

- If using prostin gel, the maximum dose for primigravida is 5mg in divided doses. The dosage regime for this is 2mg/2mg/1mg with at least 6 hours between each dose.
- The maximum dose of prostin gel for parous women is 3mg in divided doses. The dosage regime for this is 1mg/1mg/1mg with at least 6 hours between each dose.
- Please note that the use of prostin gel is not first-line and should only be used if the tablets are unavailable.
- Women should remain semi-recumbent on the CTG for at least 30 mins after receiving a dose of vaginal prostaglandin.
- Senior obstetric staff should be informed about parous women requiring ≥ 3 doses of prostin. The registrar (or consultant) should be given the option of performing the 3rd VE and administration of 3rd prostin though this can be delegated to midwifery staff if medical staff consent.

8.2 Fetal monitoring

- CTG should be normal for a minimum of 30 minutes prior to insertion of vaginal prostaglandins.
- If there are any CTG concerns, medical review should be sought immediately and vaginal prostaglandins withheld.
- Following insertion, the CTG must be continued for a minimum of 30 minutes. If normal, it can be discontinued.
- The FH and maternal observations should be taken and recorded every 6 hours after insertion.
- At any point during the IOL process, perform CTG if the woman complains of RFM, abnormal vaginal bleeding, SRM, constant severe abdominopelvic pain or if the woman goes into labour (cervix displaying progressive effacement and ≥ 3cm dilatation).

8.3 Specific considerations

- Oligohydramnios/FGR:
  - These women are at high-risk of fetal compromise.
  - Consideration should be given to early amniotomy.
  - NHSL recommends continuous electronic fetal monitoring (CEFM) from the onset of established uterine activity.

- High head:
  - This is not an indication for cervical priming.
  - All cases should be discussed with senior obstetric staff.
  - These cases are at high risk of failed induction/cord prolapse with injudicious use of amniotomy and consideration should be given to delay of the IOL process if appropriate. This decision should be taken by the relevant senior obstetrician.

- Hyperstimulation:
    - There is a small risk of uterine tachysystole with vaginal prostaglandins (risk of fetal heart rate abnormalities with true uterine hyperstimulation is 1-5%).
    - If this occurs with any evidence of fetal compromise, immediate administration of subcutaneous terbutaline 500mcg should be given.
    - Urgent obstetric review should be requested.
    - CEFM is recommended until hyperstimulation has resolved or a decision for delivery has been made.
    - If there is no evidence of CTG abnormality but the woman has evidence of tachysystole, terbutaline is not indicated but the women should be offered analgesia, further prostaglandins withheld and medical review requested.
    - Repeat doses should be withheld only if regular painful uterine activity is present requiring analgesia or with CTG abnormalities.
    - If amniotomy is not possible, a repeat VE and re-calculation of the BS should be performed and if the cervix remains unfavourable, prostin should be given if applicable.

8.4 Contraindications

- Previous caesarean section.
- Other major uterine surgery.
- Malpresentation including cord presentation.
- Suspected or evidence of fetal distress.
- Placenta praevia/vasa praevia/unexplained vaginal bleeding.
- Lack of consent.
- Allergy/anaphylaxis.
- Multiparity:
    - Para 4/5 – relative contraindication - these women should be examined by a senior obstetrician to determine whether amniotomy is possible (even if BS <7).
    - Para ≥ 6 – absolute contraindication.
- Past history or existing pelvic inflammatory disease (PID) unless adequate prior treatment.
- Active cardiac, pulmonary, renal or hepatic disease.

8.5 Cautions with vaginal prostaglandins

- Discuss with senior obstetrician the use of vaginal prostaglandins in any of the following:
    - Asthma.
    - Glaucoma/raised intra-ocular pressure.

- Compromised renal/hepatic/pulmonary/cardiac function.
- Uterine hypertony.

8.6 Risks/side-effects of prostin

- Nausea – common.
- Vomiting – common.
- Diarrhoea – common.
- Vaginal warmth/discomfort/irritation – common.
- PE/VTE – rare.
- Hypertension – rare.
- Bronchospasm – rare.
- Amniotic fluid embolism (AFE) – very rare.
- Hypersensitivity/anaphylaxis – very rare.
- Uterine rupture – very rare.
- Disseminated intravascular coagulopathy – very rare.
- Cardiac arrest – very rare.
- In labour:
  - Uterine tachysystole.
  - Abruption.
  - Rapid cervical dilatation.
- For the neonate:
  - Fetal bradycardia/fetal distress.
  - Low Apgar score.
  - Stillbirth.
  - Neonatal death (NND).
- Breast-feeding:
  - No hazard.

8.7 If unable to ARM after full complement of vaginal prostaglandins:

- Inform senior medical staff.
- Review the need for IOL.
- Offer the woman other options:
  - Rest for 24 hours then repeat VE +/- ARM.
  - Rest for 24 hours and commence second cycle of vaginal prostaglandins.
  - Inpatient Cook's balloon.

- Caesarean section (very likely to incur further delays depending on fetal monitoring, staffing, labour ward workload, time of day).

Section 9 – Artificial rupture of the membranes (ARM) / amniotomy

- Amniotomy and oxytocin infusion should not be used as the primary IOL method if the BS is <7 except in specific circumstances such as grand multiparity or at the discretion of a senior obstetrician.
- Criteria:
  - Cervical dilatation > 2cm.
  - Cervical effacement.
  - Engagement of the fetal head.
- Procedure:
  - Auscultate the FH.
  - Perform ARM with amnihook.
  - Note colour and amount of liquor.
  - Encourage woman to mobilise if FH normal.
  - If primigravida and CTG normal, commence oxytocin immediately.
  - If parous, explore with woman and senior obstetric staff the possibility of allowing time for labour to establish. It is reasonable to commence an oxytocin infusion 2 hours later if there is inadequate uterine activity.
  - Perform serial VE's every 4h until full dilatation starting from the onset of regular activity with 3-4 contractions in 10 minutes.
  - If the spontaneous contractions post-amniotomy diminish, consider commencing an oxytocin infusion.
  - CEFM is recommended from the time of commencement of an oxytocin infusion.

Section 10 – Oxytocin use in induction of labour

Please see guideline entitled "The use of intravenous oxytocin for induction and augmentation of uterine activity" – the information below is a summary only.

10.1 General principles

- CEFM is recommended in all cases whereby patients are being induced/augmented with an intravenous oxytocin infusion.
- Oxytocin infusion must not commence within 6 hours of the patient being administered vaginal prostin.
- Consider commencing an oxytocin infusion in primigravida in whom uterine activity is inadequate during active labour or in whom uterine activity becomes diminished.
- Discuss with senior medical staff before commencing an oxytocin infusion for augmentation of a parous woman in spontaneous labour – in this case medical staff should personally perform a VE, rule out a malpresentation and decide whether or not to commence an oxytocin infusion.
- If there are persistent concerns about the normality of a CTG of a woman on an oxytocin infusion, escalate concerns to a senior midwifery colleague who can decide if medical review is warranted.
- Avoid routine reducing or stopping oxytocin in such cases prior to medical review unless the CTG is pathological/bradycardic.
- Be particularly cautious with oxytocin use in the following and seek advice of a senior obstetrician before commencing an infusion:
    - VBAC/uterine scars/previous uterine surgery.
    - Prolonged oxytocin use in those with severe hypertensive disorders of pregnancy.
    - Prolonged oxytocin use in oxytocin-resistant uterine inertia, severe PET or severe cardiovascular comorbidities.

10.2 Non-routine use of oxytocin in induction of labour

The use of intravenous oxytocin infusion for induction or augmentation of the following groups MUST always be discussed with and agreed by the consultant obstetrician:

- VBAC – see below.
- Previous uterine surgery (eg. myomectomy).
- Non-reassuring CTG.
- Malpresentation (eg. breech).
- Multiple pregnancy.
- Grand multiparity.
- Severe PET.

10.3 Specific considerations

- Term PROM
    - IOL should performed within 24 hours of the time the membranes ruptured. Women wishing to wait longer than this for the onset of spontaneous labour should be offered an appointment with their consultant obstetrician to discuss their wishes and to come up with a detailed plan for additional fetal/maternal monitoring.
    - Women with meconium-stained liquor and/or GBS should be recommended to undergo IOL immediately.
    - It is important, however, to inform the patient with an unfavourable cervix and SRM that there is evidence that an oxytocin infusion is less effective than vaginal prostaglandins in achieving a vaginal delivery within 24 hours.
    - Perform a full set of maternal observations and if the temperature is ≥ 37.5°C or there are other signs of infection/sepsis, commence the 'Sepsis 6' bundle and CTG monitoring.

- Para 4+ with Term PROM
    - Even if the cervix is unfavourable, commence oxytocin as opposed to giving vaginal prostaglandins given the risk of uterine hyperstimulation.

Section 11– VBAC

11.1 General principles

- The incidence of women presenting for antenatal and intrapartum care with a story of previous caesarean section is increasing.
- All women with previous caesarean section aiming for VBAC should be counselled appropriately. This involves review by a senior obstetrician in the antenatal clinic where the risks of VBAC should be fully discussed. These should be clearly documented on BadgerNet.
- If the woman wishes a more detailed discussion about mode of delivery options, she can be referred to the consultant antenatal clinic.
- IOL for patients with a previous section should not be considered routine.
- Women opting for VBAC after appropriate counselling should be offered an outpatient Cooks balloon induction at T+10 if they have not gone into labour prior to that date.
- If they decline IOL but wish a VBAC, caesarean section should be offered electively at T+10.
- If they decline caesarean section at T+10, they should be offered fetal monitoring as described above in the 'Post-dates induction of labour' section.

- Consultant approval for induction with one previous section is mandatory; vaginal examination and calculation of Bishop score requires to be carried out by medical staff.
- If requested, consideration should be given to a woman aiming for VBAC with ≥ 2 sections but these women should be reviewed by their own consultant at least once antenatally.
- NHSL does not recommend VBAC in those with ≥ 3 previous sections and therefore would also not recommend IOL.

11.2 Cervical priming

- First line management is the use of a Cooks balloon as an outpatient unless there is another reason to remain an inpatient.
- The use of vaginal prostaglandins is contraindicated due to an increased risk of uterine rupture.
- Women should be clearly informed that the use of a Cook's balloon or elective caesarean section is safer than the use of vaginal prostaglandins.
- It is, however, important to point out that the use of Cook's balloon for IOL in those aiming for VBAC is unlicensed but commonly performed.

11.3 Risks of VBAC

All women considering VBAC should be informed of the following risks:

- Uterine rupture:
  - 5-6:1000 for spontaneous labour.
  - 2.9/1000 in women being primed with a Foley's catheter.
  - 10.2/1000 for induced labour.
  - 8.7/1000 for augmented labour with oxytocin.
  - 24/1000 in women being primed with vaginal prostaglandins.
- Uterine dehiscence:
  - 3.3/1000 for induced labour.
  - 2.6/1000 for augmented labour.
  - 1.9/1000 for spontaneous labour.
- Antenatal stillbirth:
  - 1:10,000 in women having repeat caesarean section.
  - 10:10,000 in women having VBAC.
- Perinatal mortality:
  - 2.4/1000 for VBAC.
  - 0.9/1000 for elective repeat caesarean section (comparable to primigravid women).
- Perinatal death from uterine rupture

  - 0.45-1.1/1000.
  - This represents a 2-3/10,000 additional risk when compared with elective CS.
- Maternal death from uterine rupture: <1:100,000.
- Hypoxic ischaemic encephalopathy (HIE): 8/10,000.
- Neonatal respiratory problems:
  - VBAC 2-3%.
  - Elective CS 3-4%.
- Blood transfusion – 1% higher risk with VBAC compared with elective CS.
- Endometritis – 1% higher risk with VBAC compared with elective CS.
- Anaesthetic risk – very low irrespective of mode of delivery.
- Elective CS can increase the risk of serious complications in future pregnancies such as stillbirth and major haemorrhage secondary to invasive placentae.

11.4 Contraindications to VBAC

- Previous uterine rupture.
- High vertical classical caesarean section.
- ≥ 3 previous sections.
- No access to details of previous uterine surgery – this is a relative contraindication where the lead consultant can decide.

11.5 Use of oxytocin in VBACs

- Women should be informed of:
  - the two to three-fold increased risk of uterine rupture and
  - the 1.5-fold increased risk of caesarean section in induced/augmented labours compared with spontaneous labour.
  - the increased risk of uterine rupture with use of vaginal prostaglandins.
- There should be serial cervical assessments, preferably by the same person, for both augmented and non-augmented labours to ensure adequate cervical progress.
- A consultant obstetrician should make the following decisions in formulating a plan for intrapartum care of someone aiming for VBAC:
  - Decision to induce.
  - Method of induction.
  - Decision to augment with oxytocin.
  - Time intervals for serial vaginal examination.
  - Selected parameters of progress that would necessitate discontinuing VBAC attempts.
- If oxytocin is required, a 'half-dose' should be used.

- Dilute 5 international units of oxytocin (5ml) in 500ml normal saline and escalate as per the following table:

Infusion rate (ml/hr)	Time after starting (min)	Oxytocin dose at current rate (milliunits/min)
10	0	1.6
20	30	3.6
40	60	6.7
60	90	10
80	120	13.3
99	150	16.5

- The above regime should be prescribed.
- A VE should be performed by the designated midwife 4 hours after commencing an oxytocin infusion.
- If there has been no evidence of progressive cervical dilatation, further management should be discussed with the consultant.
- If there has been some change but not sufficient enough to conform adequate progress, further management should be discussed with the consultant.
- If progress is being made, the above regime should be continued and titrated against uterine activity.

11.6 Use of oxytocin in women with previous section in spontaneous labour

- This is a consultant decision and each case should be tailored to the individual patient/situation.

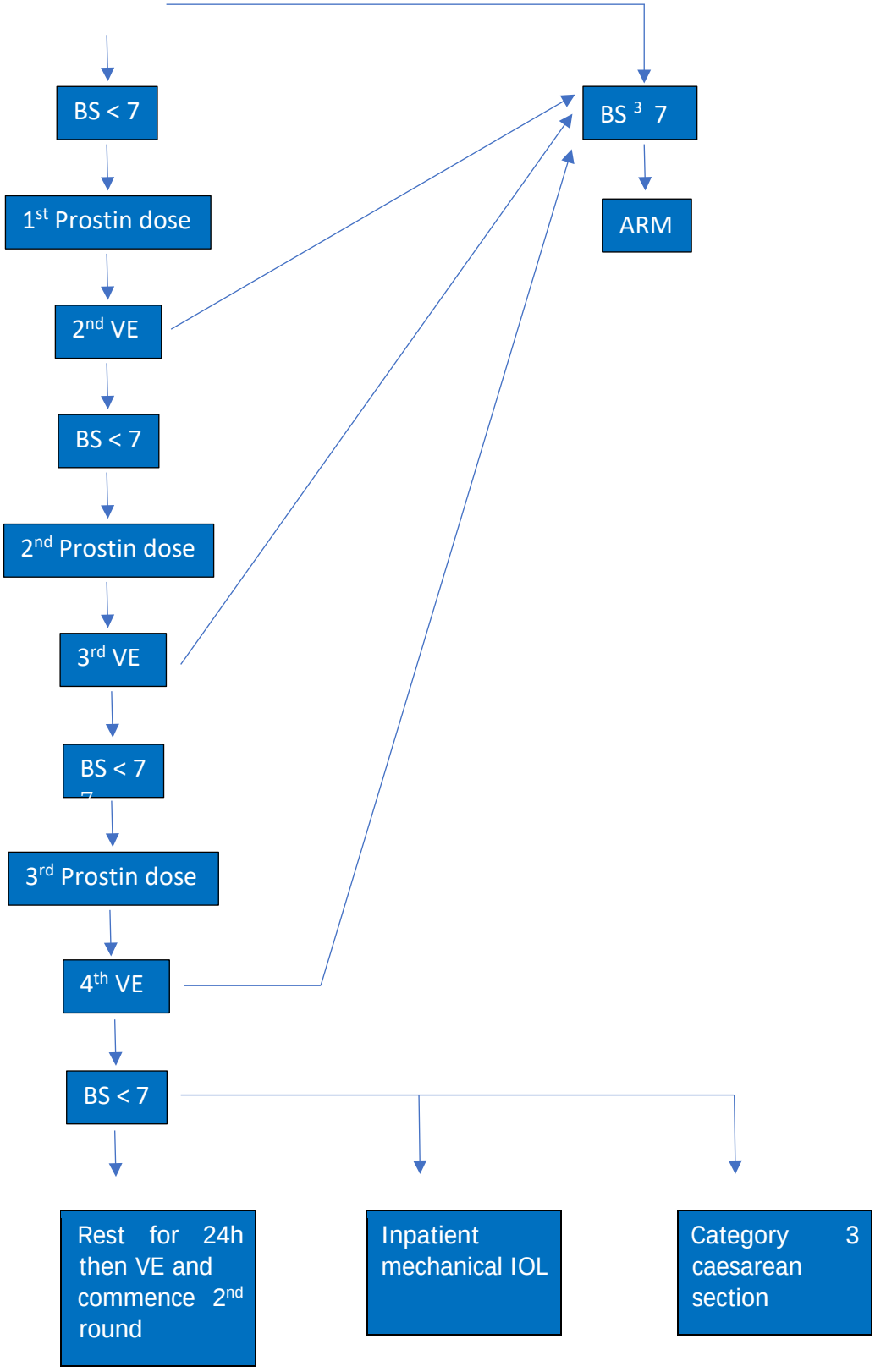
Appendix 1 Bishops Score

The following table illustrates how to formulate a Bishop Score:

	0	1	2	3
Dilatation of internal os (cm)	<1	1-2	2-4	>4
Length of cervix (cm)	>4	2-4	1-2	<1
Cervical consistency	Firm	Average	Soft	
Cervical position	Posterior	Mid/anterior		
Station of head	-3	-2	-1	Spines/below spines

If the BS is ≥ 7, then the cervix is favourable for amniotomy.
If the BS is < 7, the cervix is unfavourable.

Appendix 2 Flowchart for use of vaginal prostaglandins for induction of labour



Appendix 3 Doses of vaginal prostaglandins

Doses of vaginal prostaglandins organised by type of prostaglandin and parity.

	Primigravida		Parous women	
	Tablet	**Gel**	**Tablet**	**Gel**
1st dose	3mg	2mg	3mg	1mg
2nd dose	3mg	2mg	3mg	1mg
3rd dose	3mg	1mg	3mg	1mg

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4eMC – Prostin E2 Vaginal tablets 3mg – Summary of product characteristics (SPC)

4eMC – Prostin E2 Vaginal gel 1mg, 2mg – Summary of product characteristics (SPC)

4eMC – Propess 10mg – Summary of product characteristics (SPC)

4eMC – Syntocinon - Summary of product characteristics (SPC) British National Formulary

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