University Hospital of North Staffordshire NHS
NHS Trust

Achieving Sustainable Quality in Maternity Services

ASQUAM

Guideline for Induction of Labour

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Ratified by:	Labour Ward Forum Sub-Group Obstetric Guideline Group
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This guideline should be read in conjunction with the ASQUAM Dinoprostone (Propess®) for Outpatient Management of Induction of Labour guideline

1. PURPOSE OF THE GUIDELINE

The purpose of this guideline is to provide up-to-date information for medical and midwifery staff at the UHNS, to ensure the provision of consistent, high quality evidence based care for women undergoing induction of labour.

This guideline draws together and builds upon the expanse of recent evidence based literature published by the Royal College of Obstetricians and Gynaecologists, in their clinical guideline 'Induction of Labour' and adopted for use by the National Institute of Clinical Excellence[1] (NICE) and also the Electronic Fetal Monitoring guideline, NICE.[2]

These two guidelines form the basis of this clinical guideline, which addresses local service provision and the needs of the local population. By adopting this guideline there should be better use of resources both on the Delivery Suite (DS) and the Antenatal Clinic (ANC).

2. BACKGROUND

Induction of labour (IOL) is defined as an intervention designed to artificially initiate uterine contractions leading to progressive dilatation and effacement of the cervix and the birth of the baby.

This includes both women with intact membranes and women with spontaneous rupture of membranes but who are not in labour.

IOL is a common procedure; approximately 24% of pregnant women in North Staffordshire will have their labour induced for a variety of reasons.

3. DATING BY EARLY ULTRA-SOUND SCAN (USS)

A policy of early pregnancy ultrasound reduces the need for induction of labour for a perceived post-term pregnancy.

At the UHNS the 12 week USS is used to establish the woman's expected date of delivery.

4. INDICATIONS AND CONTRA-INDICATIONS TO INDUCTION OF LABOUR

4.1 Indications for IOL

- When the intrauterine risks are such that the infant will be safer delivered
- When the risk to the mother's health from continuation of the pregnancy outweighs the risk to the delivery of the fetus.

The process of induction of labour should only be considered when vaginal delivery is felt to be an appropriate route of delivery.

4.2 Indications

- Pregnancy Induced Hypertension
- Severe proteinuric pregnancy induced hypertension
- Rhesus incompatibility
- Maternal diabetes mellitus
- Cholestasis
- Fetal growth restriction
- Post dates (between Term+12 and Term+14)
- Pre-labour spontaneous rupture of membranes
- Pre-term, pre-labour rupture of membranes.
- Severe SPD requiring mobility aids.
- Maternal medical condition requiring delivery
- Maternal age >40
- Induction of labour should not routinely be offered for maternal request. Under exceptional circumstances, however, (for example, if the woman's partner is soon to be posted abroad with the armed forces), induction may be considered at or after 40 weeks. (NICE 2008)
- Social indications rarely constitute an adequate reason for induction but each case should be considered on its merits after adequate counselling of parents and has to be discussed with the Consultant in charge of the patient.
- Intrauterine Death – Mifepristone 200mgs is given orally, followed by Misoprostal 48 hours later. Details in the IUD Care pathway.
- Dinoprostone 3 mg tablets/ 1mg gel / Dinoprostone (Propess®/Prostin®) 10mg, if cervix unfavourable for ARM. Both Propess and Prostin are unlicensed preparations for use in previous CS. There is no current evidence to suggest that one preparation is better or safer than the other.

Therefore:

1. Induction of labour for previous CS should be a consultant decision

2. The consultant can decide which preparation to use.

3. The risks should be explained to patient and documented in the notes.

See ASQUAM Guideline Vaginal Birth After Caesarean Section (VBAC) for full details

4.3 Contra-indications to induction of labour

- The fetal lie is not longitudinal
- A tumour occupies the pelvis.

Decisions regarding optimal timing of delivery remain difficult and should always be taken by experienced staff and should be discussed with the woman's Consultant. (GPP. UHNS)

5. DISCUSSION AND DOCUMENTATION

In every case, to allow the woman to make an informed consent, discussions with the woman must include: the indication for induction, the choice of methods used and the potential risks and consequences for accepting or refusing the offer of induction. Discussions must be documented and a plan of management must be outlined. This must also include an agreed management plan if the induction process fails, e.g. delivery by caesarean section. In the case of women requesting induction of labour who do not fall into a category for induction of labour a referral to a consultant obstetrician must be made to discuss this. This discussion must be documented in the WMPI pregnancy records and an agreed management plan formulated.

6. INDUCTION OF LABOUR FOR PROLONGED PREGNANCY IN A LOW RISK WOMAN

Population studies have revealed that in women who are healthy with uncomplicated pregnancies, perinatal mortality and morbidity is increased in pregnancies beyond 42 weeks gestation. The risk of stillbirth at 42 weeks is 3 per 3000 continuing pregnancies**. INDUCTION OF LABOUR FOR POST DATES IS DONE AT TERM +12 – TERM +14.**

6.1 The use of the 'Bishop's score'

Cervical ripeness

This is easily assessed clinically, and the cervical state given a numerical value according to the modified Bishop's Score.

If the cervix is ripe (score >5) induction of labour is likely to be straightforward. A score of less than 5 does not preclude a successful induction, but the attempt is more likely to fail, have a longer latent phase and require a higher total dose of oxytocin.

Cervical state Score:	**0**	**1**	**2**	**3**
Dilation (cm)	Closed	1 – 2	3 – 4	5 +
Length of cervix (cm)	3	2	1	0
Station of vertex (cm above IS) – (cm above IS) +	-3	02	-1,0	+1,+2
Consistency	Firm	Medium	Soft	
Position of cervix	Posterior	Middle	anterior	

6.2 Membrane Sweeping

Membrane sweeping is a relatively simple technique, usually performed without admission to hospital.

If the woman chooses induction of labour then she should be offered membrane sweeping. Primips 40 weeks and 41 weeks gestation, multips 41 weeks gestation (NICE).

This intervention has the potential to initiate labour by increasing local production of prostaglandins and thus, reduce pregnancy duration or pre-empt formal IOL, however, membrane sweeping can be uncomfortable for the mother. **(Evidence level Ia)**

The benefits therefore need to be balanced against the woman's discomfort.

Membrane sweeping & booking the date for induction in the low risk woman can be undertaken by the woman's lead midwife.

A full explanation of the reasons for induction of labour, risks, benefits and the process should also be undertaken at this time. A patient information leaflet should be given to the woman.

7. BOOKING THE INDUCTION OF LABOUR AT THE UHNS(GPP. UHNS)

All IOL bookings are entered into a diary. It is in the Delivery Suite (extension 72333). IOL at the UHNS take place on the Delivery Suite

- All primips and multips, whether low or high risk, are admitted in the morning and are asked to telephone Delivery Suite at 09.00 hours to confirm a bed.

- All women with pre-labour spontaneous rupture of membranes are asked to telephone at 09.00 hours to confirm a bed.

8. METHODS OF INDUCTION OF LABOUR

The insertion of vaginal Dinoprostone (Propess®/Prostin®), amniotomy and the administration of intravenous infusion of oxytocin (following amniotomy if indicated) are the main methods of IOL at the UHNS. Aim to perform amniotomy in multips. If a midwife is not able to do this then the woman should be assessed by a more senior midwife or doctor. Occasionally the use of cervical ripening balloon or Foley's catheter may be appropriate, but should be discussed with a Consultant Obstetrician.

The cervical state has a profound influence on the outcome of induced labour, and a policy of active cervical ripening prior to amniotomy produces dramatic results. **(Evidence level Ia)**

8.1 Dinoprostone (Propess®/Prostin®)

Preparation

1. Dinoprostone (Propess®) 10 mg – for primips and previous caesarean section re-assess and remove after 24 hours.

2. Dinoprostone gel (Prostin®) 1 mg – for multips and re-assess after 6 hours, followed up after 6 hours by 1 mg if required

3. Dinoprostone tablets (Prostin®) 3 mg – for multips and re-assess after 6 hours, followed up by 3 mgs after 6 hours if required

Use with caution

- Previous caesarean section. Uterine rupture when labour is induced with prostaglandins is 240 per 10,000.
- Previous uterine surgery
- Multiple pregnancy
- Evidence of antepartum fetal compromise (significant IUGR, oligohydramnios, abnormal CTG, Doppler and Biophysical profile)
- Grand multipara (≥4)

Dosage

If Bishops score less than 5, slow release vaginal prostaglandin pessary is inserted and left for 24 hours.

Maternal and fetal observations to be carried out during induction prior to the establishment of labour

- The patient should be recumbent for 30 minutes after insertion
- Continue CTG for an hour.
- At 1 hour post-insertion check maternal observations, including: temperature, pulse and blood pressure, and note any adverse effects (nausea, vomiting, tachycardia, hypotension, fever, vaginal irritation, abdominal pain, vaginal bleeding, hypertonic uterine activity, abnormal CTG).
- Further monitoring of maternal observations and CTG 4 hourly until in labour.

For patients with previous caesarean section, dinoprostone pessary (Propess®) or prostaglandin gel (Prostin®) is administered only after the Consultant Obstetrician's approval.

Dinoprostone Pessary (Propess®) insertion – 10 mg

- Remove Dinoprostone pessary from the freezer 20 minutes before administering it
- Insert Dinoprostone pessary high into the posterior fornix using aquagel NOT Hibitane.
- The pessary should lie transversely in the posterior fornix.
- It may be possible for some women to go home following insertion of Dinoprostone pessary. Please see ASQUAM Dinoprostone (Propess®) for Outpatient Management of Induction of labour guideline.

Side effects

Uterine hypertonus – occurs in less than 1%. Manage this emergency with tocolysis subcutaneous terbutaline (Bricanyl®) 250 micrograms[1] (Evidence level Ia)

- Fine tremor
- Headache
- Peripheral dilatation and palpitation
- Tachycardia
- Bronchospasm
- Maternal hypertension

8.2 Amniotomy (the artificial rupture of membranes)

Indications

- As part of induction of labour
- To augment established labour at term
- To allow attachment of fetal scalp electrode

Contraindications

- Unknown/uncertain gestation
- Lie not longitudinal
- Presenting part not determined
- High presenting part
- Intrauterine death
- Vaginal bleeding and placenta praevia has been excluded

Potential complications

- Cord prolapse
- Antepartum haemorrhage: Consider abruption, cervical trauma, vasa praevia, undiagnosed placenta praevia.

For maternal and fetal observations see management of Dinosprostone (8.1), Dinoprostone Pessary (Propess®) (8.1) oxytocin (8.3), as appropriate.

8.3 Oxytocin

Synthetic oxytocin, is identical to the posterior pituitary polypeptide hormone, it selectively stimulates the contraction of the uterine smooth muscle.

Continuous monitoring of maternal and fetal condition is mandatory in these situations.

Prior to labour becoming established:

Maternal

- 4 times in 24 hours (unless maternal condition indicates otherwise) monitoring of contractions, temperature, pulse and blood pressure must be recorded within the WMPI birth records.

- Observe for any signs of change in maternal condition.

Fetal

- Initial CTG of 20 minutes prior to commencement of oxytocin unless any concerns have arisen with the fetal heart.

- Continuous CTG once oxytocin commences (please use stickers for commencement, hourly assessment and completion of CTG).

Commencement of CTG

Date……	Time……
Name	
Hospital Number	
Maternal Pulse	
Pinard Fetal Heart Rate	
Reason for CTG	
Please circle Date and Time on CTG Paper	

Hourly assessment of CTG

Date……	Time……..
Baseline rate BPM	
Variability	
Accelerations	
Decelerations	
Category	
Contractions	/10
Plan	
Midwife……	Fresh eyes……

- Ensure that the above hourly assessment sticker is completed and that the appropriate classification sticker is attached to the CTG and signed (see below)

CTG classification stickers

Normal Signature

Suspicious Signature

Pathological Signature

- Ensure the mother is aware of any change in fetal activity and reports to the midwife.

As labour becomes established, the uterus becomes more sensitive to oxytocin (usually from about 5 cm dilatation). From this time the effective dose can usually be reduced or stopped.

Please use CTG completion sticker below:

Completion of CTG sticker

CTG Completion	
Midwifes Name	
Signature	
Mode of Delivery	
Date	
Time	
Apgar Score	1min 5min

Oxytocin regimens are numerous, but the principles are the same:

- Initially given in low doses
- Gradually and steadily increased until effective contractions are produced
- The dose rate is varied to suite the individual patient
- Aim to detect any hyperstimulation early

Contra-indications

- Hypertonic uterine inertia
- Mechanical obstruction to delivery
- Failed trial of labour
- Fetal distress
- Placenta praevia
- Severe pre-eclampsiatoxaemia
- Severe cardiovascular disease

Precautions

- Abnormal presentation (eg. breech)
- Multiple pregnancy
- High parity
- Previous caesarean section
- Action may be potentiated by prostaglandins

Side effects

- Nausea, vomiting, arrhythmia, headache, intravascular coagulation, rash and anaphylactoid reactions, uterine spasm, uterine hyperstimulation, fetal distress, asphyxia, Uterine hyper tonus, Water intoxication and hyponatraemia, placental abruption and amniotic fluid embolism.

8.4 Oxytocin Regimen for Induction/Augmentation of Labour

- Oxytocin should not be started for 6 hours following administration of vaginal prostaglandin gel, and can be started 30 minutes after removal of Dinoprostone (Propess®).

- Amniotomy should be performed where feasible prior to commencement of an infusion of oxytocin, apart from in the case of an intra-uterine death

- **The 30 minute incremental infusion rates of oxytocin to be followed are:**

  5 units oxytocin made up to
  50 ml with 0.9% sodium chloride ie. 5 units in 1 ml oxytocin + 49 mls in 0.9% sodium chloride

- Start the infusion at 1.5ml/hr increasing every 30 minutes to a maximum of 9.0 ml/hr via an IVAC volumetric infusion device.
  Rate Commencing at:

  Start 1.5 ml/hr then after 30 minutes
  3.0 ml/hr then after 30 minutes
  4.5 ml/hr then after 30 minutes
  6.0 ml/hr then after 30 minutes
  9.0 ml/hr maximum

- NICE guidance, suggests that if regular contractions are not established after five hours on suggested regime, then the induction should be stopped and a plan of management considered and clearly documented.[1]

- At commencement of oxytocin please use appropriate sticker (see below)

OXYTOCIN	
WHEN STARTING	**WHEN TO STOP/REDUCE**
Indication: IOL ☐ 1st ☐ 2nd ☐ Postnatal ☐	Hyperstimulation (>5/10) and pathological CTG **OR** Deceleration >3 minutes **OR** Following titration after delivery of baby Reduce oxytocin and obtain medical review: Hyperstimulation and normal/suspicious CTG

8.5 Oxytocin Regimen for Induction/Augmentation of Labour in pre-eclampsia

- Oxytocin should not be started for six hours following administration of vaginal prostaglandins

REDUCE OR STOP THE INFUSION RATE IF:

- STOP IF PROLONGED DECELERATION >2MINS OR BRADYCARDIA. OTHER CTG CONCERNS SHOULD TRIGGER IMMEDIATE MEDICAL REVIEW AND DECISION RE. OXYTOCIN

- Contractions last > 60 seconds
- Uterus does not relax between contractions

- Uterus contracts for more than 40% of time over 10 minute interval
- Coupling of contractions – this implies over stimulation

9. FAILED INDUCTION

Defined as: failure to deliver a patient vaginally, in whom a safe vaginal delivery was initially expected.

This would therefore include:

- Failure to induce effective uterine contractions within 24 hours
- The need to carry out caesarean section for an obstetric indication e.g. failure to progress in labour
- An individual management plan needs to be developed in the event of a failed induction of labour.

10. ALTERNATIVE TO INDUCTION OF LABOUR

Evidence on the risks to the fetus of prolonged labour is not clear. The value of routine induction at 42 completed weeks, versus a policy of post-term surveillance with conservative management.

Although the risk to the pregnancy increases with advancing gestation, the overall risk to the pregnancy is still relatively small. At 42 weeks gestation the risk of fetal loss is 3 per 3000 continuing pregnancies and 6 per 3000 continuing pregnancies at 43 weeks[4] **(Evidence level IIa).**

Some women may prefer to adopt a policy of expectant management. These women should be referred for twice-weekly cardio-tocograph and weekly liquor volume assessment after 42 weeks gestation until the onset of labour. The woman may choose to opt for induction of labour at any point beyond 42 weeks gestation. **(Evidence level Ia)**

In the case of a women declining induction of labour, the risk must be fully discussed with the Consultant Obstetrician and an individual management plan to be documented in the woman's hand held maternity records.

11. MONITORING AND AUDIT

The need to monitor/audit the standards set out below will be considered alongside other Directorate requirements and prioritised accordingly. The Directorate Clinical Audit programme is drafted by the Directorate Clinical auditor, in liaison with clinical staff, and approved by the Directorate.

Element to be monitored	Lead	Tool	Frequency	Reporting arrangements	Acting on recommendations and Lead(s)	Change in practice and lessons to be shared
when membrane sweeping should occur	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	Directorate Business, Performance and Clinical Governance Meeting **(DBP&CG Meeting)**	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
gestation at which induction of labour should take place	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
induction of labour in specific circumstances, which as a minimum must include:						
prolonged pregnancy	Directorate Clinical Auditor	On-going CNST Data Collection	Audit of ≥ CNST compliant sample size (e.g. 1% or 1 sets) reported annually	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
preterm prelabour rupture of membranes	Directorate Clinical Auditor	On-going CNST Data Collection	Audit of ≥ CNST compliant sample size (e.g. 1% or 1 sets) reported annually	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.

prelabour rupture of membranes at term	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
previous caesarean section	Directorate Clinical Auditor	On-going CNST Data Collection	Audit of ≥ CNST compliant sample size (e.g. 1% or 1 sets) reported annually	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
fetal growth restriction	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
maternal diabetes	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
intrauterine death	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant

					approved by the DBP&CG Meeting	stakeholders as per audit action plan.
methods of induction	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
maternal observations that should be carried out during induction prior to the establishment of labour	Directorate Clinical Auditor	On-going CNST Data Collection	Audit of ≥ CNST compliant sample size (e.g. 1% or 1 sets) reported annually	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
fetal observations that should be carried out during induction prior to the establishment of labour	Directorate Clinical Auditor	On-going CNST Data Collection	Audit of ≥ CNST compliant sample size (e.g. 1% or 1 sets) reported annually	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
the development of an individual management plan when induction of labour fails	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.

the process for dealing with maternal requests for induction of labour	Directorate Clinical Auditor	On-going CNST Data Collection	Audit of ≥ CNST compliant sample size (e.g. 1% or 1 sets) reported annually	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.
the development of an individual management plan when induction of labour is declined	Directorate Clinical Auditor	Rolling Audit Programme	Every three years	DBP&CG Meeting	Required actions will be identified and completed in a specified timeframe as per the audit action plan. These will be monitored and approved by the DBP&CG Meeting	Required changes to practice will be identified and actioned within a specific timeframe as per the audit action plan and, in addition, lessons will be shared with relevant stakeholders as per audit action plan.

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