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Induction of labour

**This is an update of NICE inherited
clinical guideline D**

NICE clinical guideline 70 Induction of labour

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- The NICE guideline (this document) – all the recommendations.
- A quick reference guide – a summary of the recommendations for healthcare professionals.
- ‘Understanding NICE guidance’ – information for patients and carers.
- The full guideline – all the recommendations, details of how they were developed, and reviews of the evidence they were based on.

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- N1625 (quick reference guide)
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This guidance is an update of NICE inherited clinical guideline D (published in June 2001) and will replace it.

The original NICE guideline and supporting documents are available from www.nice.org.uk/CGD

Introduction

This is an update of 'Induction of labour' (NICE inherited clinical guideline D). The update was necessary because of changes in the evidence base and clinical practice.

Induced labour has an impact on the birth experience of women. It may be less efficient and is usually more painful than spontaneous labour, and epidural analgesia and assisted delivery are more likely to be required.

Induction of labour is a relatively common procedure. In 2004 and 2005, one in every five deliveries in the UK was induced. This includes induction for all medical reasons. When labour was induced using pharmacological methods (whether or not surgical induction was also attempted), less than two thirds of women gave birth without further intervention, with about 15% having instrumental births and 22% having emergency caesarean sections. Induction of labour has a large impact on the health of women and their babies and so needs to be clearly clinically justified.

Induction of labour can place more strain on labour wards than spontaneous labour. Traditionally, induction is carried out during the daytime when labour wards are often already busy. This updated guideline reviews the policy and methods of induction, and the care to be offered to women being offered and having induction of labour.

The guideline will assume that prescribers will use a drug's summary of product characteristics (SPC) to inform their decisions for individual women.

Woman-centred care

This guideline offers best practice advice on the care of women who are having or being offered induction of labour.

Treatment and care should take into account women's individual needs and preferences. Women who are having or being offered induction of labour should have the opportunity to make informed decisions about their care and treatment, in partnership with their healthcare professionals. If a woman does not have the capacity to make decisions, healthcare professionals should follow the Department of Health guidelines – 'Reference guide to consent for examination or treatment' (2001) (available from www.dh.gov.uk). Healthcare professionals should also follow a code of practice accompanying the Mental Capacity Act (summary available from www.publicguardian.gov.uk).

Good communication between healthcare professionals and women is essential. It should be supported by evidence-based written information tailored to the needs of the individual woman. Treatment and care, and the information women are given about it, should be culturally appropriate. It should also be accessible to women, their partners and families, taking into account any additional needs such as physical or cognitive disabilities, and inability to speak or read English.

Key priorities for implementation

Information and decision-making

- Women should be informed that most women will go into labour spontaneously by 42 weeks. At the 38 week antenatal visit, all women should be offered information about the risks associated with pregnancies that last longer than 42 weeks, and their options. The information should cover:
 - membrane sweeping:
 - ◇ that membrane sweeping makes spontaneous labour more likely, and so reduces the need for formal induction of labour to prevent prolonged pregnancy
 - ◇ what a membrane sweep is
 - ◇ that discomfort and vaginal bleeding are possible from the procedure
 - induction of labour between 41⁺⁰ and 42⁺⁰ weeks
 - expectant management.

- Healthcare professionals should explain the following points to women being offered induction of labour:
 - the reasons for induction being offered
 - when, where and how induction could be carried out
 - the arrangements for support and pain relief (recognising that women are likely to find induced labour more painful than spontaneous labour) (see also 1.6.2.1 and 1.6.2.2)
 - the alternative options if the woman chooses not to have induction of labour
 - the risks and benefits of induction of labour in specific circumstances and the proposed induction methods
 - that induction may not be successful and what the woman's options would be.

Induction of labour to prevent prolonged pregnancy

- Women with uncomplicated pregnancies should usually be offered induction of labour between 41⁺⁰ and 42⁺⁰ weeks to avoid the risks of prolonged pregnancy. The exact timing should take into account the woman's preferences and local circumstances.

Preterm prelabour rupture of membranes

- If a woman has preterm prelabour rupture of membranes after 34 weeks, the maternity team should discuss the following factors with her before a decision is made about whether to induce labour, using vaginal prostaglandin E2 (PGE₂)¹:
 - risks to the woman (for example, sepsis, possible need for caesarean section)
 - risks to the baby (for example, sepsis, problems relating to preterm birth)
 - local availability of neonatal intensive care facilities.

Vaginal PGE₂

- Vaginal PGE₂ is the preferred method of induction of labour, unless there are specific clinical reasons for not using it (in particular the risk of uterine hyperstimulation). It should be administered as a gel, tablet or controlled-release pessary. Costs may vary over time, and trusts/units should take this into consideration when prescribing PGE₂. For doses, refer to the SPCs. The recommended regimens are:
 - one cycle of vaginal PGE₂ tablets or gel: one dose, followed by a second dose after 6 hours if labour is not established (up to a maximum of two doses)
 - one cycle of vaginal PGE₂ controlled-release pessary: one dose over 24 hours.

¹ Vaginal PGE₂ has been used in UK practice for many years in women with ruptured membranes. However, the SPCs (July 2008) advise that in this situation, vaginal PGE₂ is either not recommended or should be used with caution, depending on the preparation (gel, tablet or pessary). Healthcare professionals should refer to the individual SPCs before prescribing vaginal PGE₂ for women with ruptured membranes, and informed consent should be obtained and documented.

Failed induction

- If induction fails, healthcare professionals should discuss this with the woman and provide support. The woman's condition and the pregnancy in general should be fully reassessed, and fetal wellbeing should be assessed using electronic fetal monitoring.

- If induction fails, the subsequent management options include:
 - a further attempt to induce labour (the timing should depend on the clinical situation and the woman's wishes)
 - caesarean section (refer to 'Caesarean section' [NICE clinical guideline 13]).

1 Guidance

The following guidance is based on the best available evidence. The full guideline (www.nice.org.uk/CG070FullGuideline) gives details of the methods and the evidence used to develop the guidance.

1.1 *Information and decision-making*

This section should be read in conjunction with 'Antenatal care: routine care for the healthy pregnant woman' (NICE clinical guideline 62), available from www.nice.org.uk/CG062, and 'Intrapartum care: care of healthy women and their babies during childbirth' (NICE clinical guideline 55), available from www.nice.org.uk/CG055.

1.1.1.1 Women should be informed that most women will go into labour spontaneously by 42 weeks. At the 38 week antenatal visit, all women should be offered information about the risks associated with pregnancies that last longer than 42 weeks, and their options. The information should cover:

- membrane sweeping:
 - that membrane sweeping makes spontaneous labour more likely, and so reduces the need for formal induction of labour to prevent prolonged pregnancy
 - what a membrane sweep is
 - that discomfort and vaginal bleeding are possible from the procedure
- induction of labour between 41⁺⁰ and 42⁺⁰ weeks
- expectant management.

1.1.1.2 Healthcare professionals should explain the following points to women being offered induction of labour:

- the reasons for induction being offered
- when, where and how induction could be carried out
- the arrangements for support and pain relief (recognising that women are likely to find induced labour more painful than spontaneous labour) (see also 1.6.2.1 and 1.6.2.2)
- the alternative options if the woman chooses not to have induction of labour
- the risks and benefits of induction of labour in specific circumstances and the proposed induction methods
- that induction may not be successful and what the woman's options would be.

1.1.1.3 Healthcare professionals offering induction of labour should:

- allow the woman time to discuss the information with her partner before coming to a decision
- encourage the woman to look at a variety of sources of information
- invite the woman to ask questions, and encourage her to think about her options
- support the woman in whatever decision she makes.

1.2 *Induction of labour in specific circumstances*

1.2.1 Prevention of prolonged pregnancy

1.2.1.1 Women with uncomplicated pregnancies should be given every opportunity to go into spontaneous labour.

1.2.1.2 Women with uncomplicated pregnancies should usually be offered induction of labour between 41⁺⁰ and 42⁺⁰ weeks to avoid the risks of prolonged pregnancy. The exact timing should take into account the woman's preferences and local circumstances.

1.2.1.3 If a woman chooses not to have induction of labour, her decision should be respected. Healthcare professionals should discuss the woman's care with her from then on.

1.2.1.4 From 42 weeks, women who decline induction of labour should be offered increased antenatal monitoring consisting of at least twice-weekly cardiotocography and ultrasound estimation of maximum amniotic pool depth².

1.2.2 Preterm prelabour rupture of membranes

1.2.2.1 If a woman has preterm prelabour rupture of membranes, induction of labour should not be carried out before 34 weeks unless there are additional obstetric indications (for example, infection or fetal compromise).

1.2.2.2 If a woman has preterm prelabour rupture of membranes after 34 weeks, the maternity team should discuss the following factors with her before a decision is made about whether to induce labour, using vaginal PGE₂³:

- risks to the woman (for example, sepsis, possible need for caesarean section)
- risks to the baby (for example, sepsis, problems relating to preterm birth)
- local availability of neonatal intensive care facilities.

² Recommendation 1.2.1.4 is from 'Antenatal care: routine care for the healthy pregnant woman' (NICE clinical guideline 62). Available from www.nice.org.uk/CG062

³ Vaginal PGE₂ has been used in UK practice for many years in women with ruptured membranes. However, the SPCs (July 2008) advise that in this situation, vaginal PGE₂ is either not recommended or should be used with caution, depending on the preparation (gel, tablet or pessary). Healthcare professionals should refer to the individual SPCs before prescribing vaginal PGE₂ for women with ruptured membranes, and informed consent should be obtained and documented.

1.2.3 Prelabour rupture of membranes at term

1.2.3.1 Women with prelabour rupture of membranes at term (at or over 37 weeks) should be offered a choice of induction of labour with vaginal PGE₂⁴ or expectant management.

1.2.3.2 Induction of labour is appropriate approximately 24 hours after prelabour rupture of the membranes at term⁵.

1.2.4 Previous caesarean section

1.2.4.1 If delivery is indicated, women who have had a previous caesarean section may be offered induction of labour with vaginal PGE₂⁶, caesarean section or expectant management on an individual basis, taking into account the woman's circumstances and wishes. Women should be informed of the following risks with induction of labour:

- increased risk of need for emergency caesarean section during induced labour
- increased risk of uterine rupture.

1.2.5 Maternal request

1.2.5.1 Induction of labour should not routinely be offered on maternal request alone. However, under exceptional circumstances (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.

⁴ Vaginal PGE₂ has been used in UK practice for many years in women with ruptured membranes. However, the SPCs (July 2008) advise that in this situation, vaginal PGE₂ is either not recommended or should be used with caution, depending on the preparation (gel, tablet or pessary). Healthcare professionals should refer to the individual SPCs before prescribing vaginal PGE₂ for women with ruptured membranes, and informed consent should be obtained and documented.

⁵ Recommendation 1.2.3.2 is from 'Intrapartum care: care of healthy women and their babies during childbirth' (NICE clinical guideline 55). Available from www.nice.org.uk/CG055

⁶ Vaginal PGE₂ has been used in UK practice for many years in women with a history of previous caesarean section. However, the SPCs (July 2008) advise that the use of vaginal PGE₂ is not recommended in women with a history of previous caesarean section. Informed consent on the use of vaginal PGE₂ in this situation should therefore be obtained and documented.

1.2.6 Breech presentation

1.2.6.1 Induction of labour is not generally recommended if a woman's baby is in the breech presentation. If external cephalic version is unsuccessful, declined or contraindicated, and the woman chooses not to have an elective caesarean section, induction of labour should be offered, if delivery is indicated, after discussing the associated risks with the woman.

1.2.7 Fetal growth restriction

1.2.7.1 If there is severe fetal growth restriction with confirmed fetal compromise, induction of labour is not recommended.

1.2.8 History of precipitate labour

1.2.8.1 Induction of labour to avoid a birth unattended by healthcare professionals should not be routinely offered to women with a history of precipitate labour.

1.2.9 Intrauterine fetal death

1.2.9.1 In the event of an intrauterine fetal death, healthcare professionals should offer support to help women and their partners and/or family cope with the emotional and physical consequences of the death. This should include offering information about specialist support.

1.2.9.2 In the event of an intrauterine fetal death, if the woman appears to be physically well, her membranes are intact and there is no evidence of infection or bleeding, she should be offered a choice of immediate induction of labour or expectant management.

1.2.9.3 In the event of an intrauterine fetal death, if there is evidence of ruptured membranes, infection or bleeding, immediate induction of labour is the preferred management option.

1.2.9.4 If a woman who has had an intrauterine fetal death chooses to proceed with induction of labour, oral mifepristone, followed by

vaginal PGE₂ or vaginal misoprostol⁷, should be offered. The choice and dose of vaginal prostaglandin should take into account the clinical circumstances, availability of preparations and local protocol.

- 1.2.9.5 For women who have intrauterine fetal death and who have had a previous caesarean section, the risk of uterine rupture is increased. The dose of vaginal prostaglandin⁸ should be reduced accordingly, particularly in the third trimester.

1.2.10 Suspected fetal macrosomia

- 1.2.10.1 In the absence of any other indications, induction of labour should not be carried out simply because a healthcare professional suspects a baby is large for gestational age (macrosomic).

⁷ At the time of publication (July 2008), misoprostol was not licensed for use for labour induction in fetal death in utero in the UK. Informed consent should therefore be obtained and documented.

⁸ Vaginal PGE₂ has been used in UK practice for many years in women with a history of previous caesarean section. However, the SPCs (July 2008) advise that the use of vaginal PGE₂ is not recommended in women with a history of previous caesarean section. Informed consent on the use of vaginal PGE₂ in this situation should therefore be obtained and documented.

1.3 Recommended methods for induction of labour

Membrane sweeping involves the examining finger passing through the cervix to rotate against the wall of the uterus, to separate the chorionic membrane from the decidua. If the cervix will not admit a finger, massaging around the cervix in the vaginal fornices may achieve a similar effect. For the purpose of this guideline, membrane sweeping is regarded as an adjunct to induction of labour rather than an actual method of induction.

The Bishop score is a group of measurements made by doing a vaginal examination, and is based on the station, dilation, effacement (or length), position and consistency of the cervix. A score of eight or more generally indicates that the cervix is ripe, or 'favourable' – when there is a high chance of spontaneous labour, or response to interventions made to induce labour.

1.3.1 Membrane sweeping

- 1.3.1.1 Prior to formal induction of labour, women should be offered a vaginal examination for membrane sweeping⁹.
- 1.3.1.2 At the 40 and 41 week antenatal visits, nulliparous women should be offered a vaginal examination for membrane sweeping.
- 1.3.1.3 At the 41 week antenatal visit, parous women should be offered a vaginal examination for membrane sweeping.
- 1.3.1.4 When a vaginal examination is carried out to assess the cervix, the opportunity should be taken to offer the woman a membrane sweep.
- 1.3.1.5 Additional membrane sweeping may be offered if labour does not start spontaneously.

⁹ Recommendation 1.3.1.1 is from 'Antenatal care: routine care for the healthy pregnant woman' (NICE clinical guideline 62). Available from www.nice.org.uk/CG062

1.3.2 Pharmacological methods

1.3.2.1 Vaginal PGE₂ is the preferred method of induction of labour, unless there are specific clinical reasons for not using it (in particular the risk of uterine hyperstimulation). It should be administered as a gel, tablet or controlled-release pessary. Costs may vary over time, and trusts/units should take this into consideration when prescribing PGE₂. For doses, refer to the SPCs. The recommended regimens are:

- one cycle of vaginal PGE₂ tablets or gel: one dose, followed by a second dose after 6 hours if labour is not established (up to a maximum of two doses)
- one cycle of vaginal PGE₂ controlled-release pessary: one dose over 24 hours.

1.3.2.2 When offering PGE₂ for induction of labour, healthcare professionals should inform women about the associated risks of uterine hyperstimulation.

1.3.2.3 Misoprostol¹⁰ should only be offered as a method of induction of labour to women who have intrauterine fetal death (see section 1.2.9) or in the context of a clinical trial.

1.3.2.4 Mifepristone should only be offered as a method of induction of labour to women who have intrauterine fetal death (see section 1.2.9).

¹⁰ At the time of publication (July 2008), misoprostol was not licensed for use for labour induction in fetal death in utero in the UK. Informed consent should therefore be obtained and documented.

1.4 *Methods that are not recommended for induction of labour*

1.4.1 Pharmacological methods

1.4.1.1 The following should not be used for induction of labour:

- oral PGE₂
- intravenous PGE₂
- extra-amniotic PGE₂
- intracervical PGE₂
- intravenous oxytocin alone
- hyaluronidase
- corticosteroids
- oestrogen
- vaginal nitric oxide donors.

1.4.2 Non-pharmacological methods

1.4.2.1 Healthcare professionals should inform women 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.

1.4.3 Surgical methods

1.4.3.1 Amniotomy, alone or with oxytocin, should not be used as a primary method of induction of labour unless there are specific clinical reasons for not using vaginal PGE₂, in particular the risk of uterine hyperstimulation.

1.4.4 Mechanical methods

- 1.4.4.1 Mechanical procedures (balloon catheters and laminaria tents) should not be used routinely for induction of labour.

1.5 *Setting and timing*

- 1.5.1.1 In the outpatient setting, induction of labour should only be carried out if safety and support procedures are in place.
- 1.5.1.2 The practice of induction of labour in an outpatient setting should be audited continuously.
- 1.5.1.3 In the inpatient setting, induction of labour using vaginal PGE₂ should be carried out in the morning because of higher maternal satisfaction.

1.6 *Monitoring and pain relief*

1.6.1 Monitoring

- 1.6.1.1 Wherever induction of labour is carried out, facilities should be available for continuous electronic fetal heart rate and uterine contraction monitoring.
- 1.6.1.2 Before induction of labour is carried out, Bishop score should be assessed and recorded, and a normal fetal heart rate pattern should be confirmed using electronic fetal monitoring.
- 1.6.1.3 After administration of vaginal PGE₂, when contractions begin, fetal wellbeing should be assessed with continuous electronic fetal monitoring. Once the cardiotocogram is confirmed as normal, intermittent auscultation should be used unless there are clear indications for continuous electronic fetal monitoring as described in 'Intrapartum care' (NICE clinical guideline 55).
- 1.6.1.4 If the fetal heart rate is abnormal after administration of vaginal PGE₂, recommendations on management of fetal compromise in 'Intrapartum care' (NICE clinical guideline 55) should be followed.

- 1.6.1.5 Bishop score should be reassessed 6 hours after vaginal PGE₂ tablet or gel insertion, or 24 hours after vaginal PGE₂ controlled-release pessary insertion, to monitor progress (see 1.3.2.1).
- 1.6.1.6 If a woman returns home after insertion of vaginal PGE₂ tablet or gel, she should be asked to contact her obstetrician/midwife:
- when contractions begin, or
 - if she has had no contractions after 6 hours.
- 1.6.1.7 Once active labour is established, maternal and fetal monitoring should be carried out as described in 'Intrapartum care' (NICE clinical guideline 55).
- 1.6.2 Pain relief**
- 1.6.2.1 Women being offered induction of labour should be informed that induced labour is likely to be more painful than spontaneous labour.
- 1.6.2.2 Women should be informed of the availability of pain relief options in different settings (see 1.1.1.2 and 1.5.1.1).
- 1.6.2.3 During induction of labour, healthcare professionals should provide women with the pain relief appropriate for them and their pain (as described in 'Intrapartum care' [NICE clinical guideline 55]). This can range from simple analgesics to epidural analgesia.
- 1.6.2.4 Birth attendants (carers and healthcare professionals) should offer women support and analgesia as required, and should encourage women to use their own coping strategies for pain relief.
- 1.6.2.5 The opportunity to labour in water is recommended for pain relief¹¹.

¹¹ Recommendation 1.6.2.5 is from 'Intrapartum care: care of healthy women and their babies during childbirth' (NICE clinical guideline 55). Available from www.nice.org.uk/CG055

1.7 ***Prevention and management of complications***

1.7.1 **Uterine hyperstimulation**

1.7.1.1 Tocolysis should be considered if uterine hyperstimulation occurs during induction of labour.

1.7.2 **Failed induction**

Failed induction is defined as labour not starting after one cycle of treatment as described in 1.3.2.1.

1.7.2.1 If induction fails, healthcare professionals should discuss this with the woman and provide support. The woman's condition and the pregnancy in general should be fully reassessed, and fetal wellbeing should be assessed using electronic fetal monitoring.

1.7.2.2 If induction fails, decisions about further management should be made in accordance with the woman's wishes, and should take into account the clinical circumstances.

1.7.2.3 If induction fails, the subsequent management options include:

- a further attempt to induce labour (the timing should depend on the clinical situation and the woman's wishes)
- caesarean section (refer to 'Caesarean section' [NICE clinical guideline 13]).

1.7.2.4 For women who choose caesarean section after a failed induction, recommendations in 'Caesarean section' (NICE clinical guideline 13) should be followed.

1.7.3 Cord prolapse

1.7.3.1 To reduce the likelihood of cord prolapse, which may occur at the time of amniotomy, the following precautions should be taken:

- Before induction, engagement of the presenting part should be assessed.
- Obstetricians and midwives should palpate for umbilical cord presentation during the preliminary vaginal examination and avoid dislodging the baby's head.
- Amniotomy should be avoided if the baby's head is high.

1.7.3.2 Healthcare professionals should always check that there are no signs of a low-lying placental site before membrane sweeping and before induction of labour.

1.7.4 Uterine rupture

1.7.4.1 If uterine rupture is suspected during induced labour, the baby should be delivered by emergency caesarean section (refer to 'Caesarean section' [NICE clinical guideline 13]).

2 Notes on the scope of the guidance

NICE guidelines are developed in accordance with a scope that defines what the guideline will and will not cover. The scope of this guideline is available from www.nice.org.uk/guidance/index.jsp?action=download&o=34349

This guideline covers induction of labour in the following clinical circumstances:

- prolonged pregnancy
- preterm prelabour rupture of membranes
- prelabour rupture of membranes
- fetal growth restriction
- previous caesarean section
- history of precipitate labour
- maternal request
- breech presentation
- intrauterine fetal death
- suspected macrosomia.

Where relevant evidence exists, the guideline addresses induction of labour in the presence of an unfavourable and a favourable cervix separately.

This guideline does not cover induction of labour for the following groups:

- women with diabetes
- women with multifetal pregnancy
- women having augmentation (rather than induction) of labour.

This guideline gives guidance on induction of labour, within a hospital-based maternity unit setting, that covers:

- the clinical indications for induction of labour
- the timing of induction of labour
- the care women should be offered during the induction process, including monitoring, analgesia, emotional support and information provision for women and their partners/families
- methods for induction of labour
- management if the cervix is unfavourable
- management of complications of induction of labour, such as failed induction.

How this guideline was developed

NICE commissioned the National Collaborating Centre for Women's and Children's Health to develop this guideline. The Centre established a Guideline Development Group (see appendix A), which reviewed the evidence and developed the recommendations. An independent Guideline Review Panel oversaw the development of the guideline (see appendix B).

There is more information in the booklet: 'The guideline development process: an overview for stakeholders, the public and the NHS' (third edition, published April 2007), which is available from www.nice.org.uk/guidelinesprocess or from NICE publications (phone 0845 003 7783 or email publications@nice.org.uk and quote reference N1233).

3 Implementation

The Healthcare Commission assesses the performance of NHS organisations in meeting core and developmental standards set by the Department of Health in 'Standards for better health' (available from www.dh.gov.uk).

Implementation of clinical guidelines forms part of the developmental standard D2. Core standard C5 says that national agreed guidance should be taken into account when NHS organisations are planning and delivering care.

NICE has developed tools to help organisations implement this guidance (listed below). These are available on our website (www.nice.org.uk/CG070).

- Slides highlighting key messages for local discussion.
- A costing statement explaining the resource impact of this guidance.
- Audit support for monitoring local practice.

4 Research recommendations

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future. The Guideline Development Group's full set of research recommendations is detailed in the full guideline (see section 5).

4.1 *Prolonged pregnancy*

Research question

Pregnancies that continue after term run a higher risk of fetal compromise and stillbirth; can ways be found to identify pregnancies within that population that are at particular risk of these complications?

Why is this important?

Although the risks of fetal compromise and stillbirth rise steeply after 42 weeks, this rise is from a low baseline. Consequently, only a comparatively small proportion of that population is at particular risk. Because there is no way to precisely identify those pregnancies, delivery currently has to be recommended to all such women. If there were better methods of predicting complications in an individual pregnancy, induction of labour could be more precisely directed towards those at particular risk.

4.2 *Preterm prelabour rupture of membranes*

Research question

What are the relative risks and benefits of delivery versus expectant management in women whose membranes have ruptured spontaneously between 34 and 37 weeks?

Why is this important?

Intrauterine sepsis is more likely to develop in pregnancies that continue after the membranes have ruptured, putting both the woman and the baby at risk. In some such pregnancies, labour begins spontaneously at a variable interval after the membranes have ruptured, avoiding the need for induction. The value of antibiotic therapy and the administration of corticosteroids to the

woman is unclear in this situation. A randomised study of active versus expectant management, taking account of time since membrane rupture, gestational age and maternal therapy, would be valuable.

4.3 *Setting for induction of labour*

Research question

Is it safe, effective and cost effective to carry out induction of labour in an outpatient setting? What are the advantages and disadvantages of such an approach, taking into account women's views?

Why is this important?

In line with the way healthcare has developed in many areas of acute care, there is an increasing desire to reduce the time women spend in hospital. Several units are already exploring outpatient induction of labour policies and there is a need to study this approach in order to determine relative risks and benefits, as well as acceptability to women.

4.4 *Membrane sweeping*

Research question

What are the effectiveness and acceptability of, and maternal satisfaction with, the following:

- multiple versus once-only membrane sweeping, at varying gestational ages, depending on parity
- membrane sweeping versus cervical massage?

Why is this important?

Membrane sweeping is considered to be a relatively simple intervention that may positively influence the transition from maintenance of pregnancy to the onset of labour, reducing the need for formal induction of labour. However, there are disadvantages, such as possible vaginal bleeding and discomfort. Research into when and how frequently membrane sweeping should be carried out to maximise its effectiveness and acceptability would be of value.

4.5 Vaginal PGE₂

Research question

What are the effectiveness, safety and maternal acceptability of:

- different regimens of vaginal PGE₂, stratified by: clinical indications; cervical and membrane status; parity; and previous caesarean section
- different management policies for failed induction of labour with vaginal PGE₂ (additional PGE₂, oxytocin, elective caesarean or delay of induction, if appropriate).

Why is this important?

Despite extensive studies carried out over the past 30 years to determine the most effective ways of inducing labour with vaginal PGE₂, uncertainties remain about how best to apply these agents in terms of their dosage and timing. It would be particularly useful to understand more clearly why vaginal PGE₂ fails to induce labour in some women.

5 Other versions of this guideline

5.1 Full guideline

The full guideline, 'Induction of labour: 2008 update', contains details of the methods and evidence used to develop the guideline. It is published by the National Collaborating Centre for Women's and Children's Health, and is available from www.ncc-wch.org.uk, our website (www.nice.org.uk/CG070fullguideline) and the National Library for Health (www.nlh.nhs.uk).

5.2 Quick reference guide

A quick reference guide for healthcare professionals is available from www.nice.org.uk/CG070quickrefguide

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N1625).

5.3 'Understanding NICE guidance'

Information for patients and carers ('Understanding NICE guidance') is available from www.nice.org.uk/CG070publicinfoenglish

For printed copies, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk (quote reference number N1626).

We encourage NHS and voluntary sector organisations to use text from this booklet in their own information about induction of labour.

6 Related NICE guidance

- Antenatal care: routine care for the healthy pregnant woman. NICE clinical guideline 62 (2008). Available from www.nice.org.uk/CG062
- Diabetes in pregnancy: management of diabetes and its complications from pre-conception to the postnatal period. NICE clinical guideline 63 (2008). Available from www.nice.org.uk/CG063
- Antenatal and postnatal mental health: clinical management and service guidance. NICE clinical guideline 45 (2007). Available from www.nice.org.uk/CG045
- Intrapartum care: care of healthy women and their babies during childbirth. NICE clinical guideline 55 (2007). Available from www.nice.org.uk/CG055
- Postnatal care: routine postnatal care of women and their babies. NICE clinical guideline 37 (2006). Available from www.nice.org.uk/CG037
- Caesarean section. NICE clinical guideline 13 (2004). Available from www.nice.org.uk/CG013

7 Updating the guideline

NICE clinical guidelines are updated as needed so that recommendations take into account important new information. We check for new evidence 2 and 4 years after publication, to decide whether all or part of the guideline should be updated. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations.

Appendix A: The Guideline Development Group

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Appendix B: The Guideline Review Panel

The Guideline Review Panel is an independent panel that oversees the development of the guideline and takes responsibility for monitoring adherence to NICE guideline development processes. In particular, the panel ensures that stakeholder comments have been adequately considered and responded to. The panel includes members from the following perspectives: primary care, secondary care, lay, public health and industry.

Dr John Hyslop (Chair)

Consultant Radiologist, Royal Cornwall Hospital NHS Trust

Dr Ash Paul

Deputy Medical Director, Health Commission Wales

Professor Liam Smeeth

Professor of Clinical Epidemiology, London School of Hygiene and Tropical Medicine

Mr Peter Gosling

Lay member

Mr Johnathan Hopper

Medical Director (Northern Europe), ConvaTec Ltd

Appendix C: Care pathway

There is a care pathway for induction of labour on pages 6–8 of the quick reference guide at www.nice.org.uk/CG070