



Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive



INSTITUTE OF OBSTETRICIANS
& GYNAECOLOGISTS
ROYAL COLLEGE OF PHYSICIANS OF IRELAND

CLINICAL PRACTICE GUIDELINE

OXYTOCIN TO ACCELERATE OR INDUCE LABOUR

Institute of Obstetricians and Gynaecologists,
Royal College of Physicians of Ireland
and the
Clinical Strategy and Programmes Division,
Health Service Executive

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1. Revision History

Version No.	Date	Modified By	Description
1.0	April 2016		1 st published version

2. Key recommendations

1. Every maternity unit should have a single clinical guideline for the use of oxytocin to accelerate or induce labour which is based on the national guideline.
2. If the membranes are intact, an amniotomy should be performed before oxytocin is commenced.
3. A senior midwife may commence oxytocin in a nulliparous woman in the first or second stage of labour at ≥ 37 weeks' gestation (with a singleton pregnancy, cephalic presentation).
4. Continuous electronic fetal monitoring should be performed for a minimum of 20 minutes before starting oxytocin, and should be continued until the baby is delivered
5. Oxytocin should not be commenced if there is non-reassuring fetal testing.,
6. Before a multiparous woman in the first or second stage of labour is started on oxytocin, a clinical assessment must be undertaken by a senior obstetrician.
7. Before a multiparous woman with a low transverse uterine scar in labour is started on oxytocin, a clinical assessment should be performed by a senior obstetrician. The decision to start oxytocin should be made by a consultant.
8. The decision to start oxytocin in the second stage of labour in a multiparous woman without a low transverse uterine scar should be made by a consultant obstetrician.
9. If the woman has a previous uterine scar, oxytocin should not be started in the second stage of labour.
10. Oxytocin in labour should be constituted by adding 10 IU oxytocin to 1 litre of 0.9% normal saline starting at an infusion rate of 1-5mU/min. (6-30 ml per hour). The infusion rate may be increased 1-5mu/min (6-30ml/hour) every 15-30 minutes up to a maximum of 30mU/min (180 ml/hour).

11. The oxytocin infusion rate should be titrated in relation to a satisfactory cardiotocogram, frequency of uterine contractions and progress in labour.
12. If there is non-reassuring fetal testing while the woman is receiving oxytocin, she should be reviewed by an obstetrician. Consideration should be given to performing a fetal blood sample and reducing or stopping the oxytocin.
13. The frequency of uterine contractions in nulliparous women receiving oxytocin should be monitored and recorded in the clinical records. The frequency of uterine contractions in women receiving oxytocin should be measured over 15 minute intervals. These intervals must start on the hour, quarter past the hour, half past the hour, or quarter to the hour. If the rate of contractions exceeds 7 in any of these 15 minute intervals, a senior midwife should review the labour and reduce the rate of infusion until the frequency no longer exceeds 7 in 15 minutes.
14. The frequency of uterine contractions in multiparous women receiving oxytocin should be monitored and recorded in the clinical records. The frequency of uterine contractions in women receiving oxytocin should be measured over 15 minute intervals. These intervals must start on the hour, quarter past the hour, half past the hour, or quarter to the hour. If the rate of contractions exceeds 5 in any of these 15 minute intervals, a senior midwife should review the labour and reduce the rate of infusion until the frequency no longer exceeds 5 in 15 minutes.
15. The use of oxytocin should be supported by the availability of intrapartum fetal blood sampling in all maternity units.
16. The use of oxytocin should be audited and its use should be analysed using the Robson Ten Group Classification.

3. Purpose and Scope

The purpose of this guideline is to improve the use of oxytocin to accelerate or induce labour in delivery units in Ireland. The safety of baby and mother are paramount and clear guidance for midwives and obstetricians will help the decision process.

The guideline is not intended to replace clinical judgment. In individual cases a senior obstetrician or midwife may, after careful consideration, decide to deviate from the guideline if it is deemed to be in the best interests of the baby or the mother.

4. Background

4.1 Oxytocin

Oxytocin is a mammalian neurohypophysial hormone and is produced in the supraoptic and paraventricular nuclei of the hypothalamus. It is a neuropeptide that physiologically is a potent uterotonic stimulating the smooth muscles of the uterus. It also causes contraction of the myoepithelial cells surrounding the mammary alveoli leading to milk ejection during lactation.

The physiological effects of oxytocin are modified not only by circulating oxytocin, but also by the presence of oxytocinase and by the number and capacity of oxytocin receptors. Oxytocinase is a glycoprotein aminopeptidase produced during pregnancy that degrades oxytocin. Enzyme activity in the placenta increases as pregnancy progresses and rises steeply at term. After delivery it declines.

Around the onset of labour, uterine sensitivity markedly increases. This is explained by both an upregulation of oxytocin receptor mRNA levels and by a strong increase in the density of myometrial oxytocin receptors, reaching a peak during early labour (Blanks AM et al 2003). Before labour, oxytocin receptors increase not only in the myometrium but also in the decidua. During the course of labour, oxytocin receptor gene expression has been found to increase 5-fold in human chorionic decidua. Also, in the decidua oxytocin itself has a separate action in releasing the prostaglandin F₂ alpha.

4.2 Pharmacokinetics

In a low dose intravenous infusion, oxytocin elicits rhythmic uterine contractions. High doses of oxytocin, particularly if given by rapid intravenous injection, have a transient direct relaxing effect on vascular smooth muscle, resulting in brief hypotension, flushing and reflex tachycardia. Discontinuation or a significant reduction in the rate of oxytocin infusion usually leads to rapid decline on its effect on muscular activity. Oxytocin distributes throughout the extracellular fluid and plasma binding is very low. One of the advantages of intravenous infusion of oxytocin is its short half-life which, depending on the clinical circumstances and the assay used, is of the order of 3-20 minutes (Novartis syntocinon (2009)). When administered at the appropriate intravenous infusion rate, the uterine response starts gradually and usually reaches a steady state within 20-40 minutes (Novartis Syntocinon (2009))

Syntocinon is a synthetic nonapeptide identical to oxytocin. It does not contain vasopressin and has a constant and reliable effect. The solution for injection is clear and colourless and is available in ampoules containing 5IU in 1ml and 10IU in 1ml (Novartis Syntocinon, 2009).

4.3 Current International Guidelines

Internationally there is no agreement on a standardised oxytocin regimen, and different guidelines and publications recognise low and high dose oxytocin regimens (Foster et al, 1988, Akoury et al, 1991, Lazor et al, 1993, Merrill et al, 1999, Voutsos et al, 2009, Wei et al, 2010, Zhang et al, 2011, SOGC 2013, Kenyon et al, BJOG 2013, Kenyon et al, Cochrane Database 2013, NICE Guideline 2014, Norwegian Guidelines 2014, Budden et al, 2014). Often different oxytocin regimens are used within the same maternity units depending on the instructions of individual obstetricians. This is unsatisfactory and increases the risk of medication errors by midwifery staff or obstetricians.

There is no convincing evidence to show one oxytocin regimen is superior to another. A Cochrane review of four studies, including 644 women, found that a high dose regimen of oxytocin was associated with a significant reduction in the length of labour, a reduction in caesarean section and an increase in spontaneous vaginal birth (Kenyon et al, 2013). However, the evidence was not strong enough to make any firm recommendations as few data were recorded on adverse outcomes for mothers and babies. This emphasises the importance of detailed, continuous, structured clinical audit of labour and delivery in all delivery units.

Oxytocin has many advantages as a therapeutic agent. It acts quickly, and has a short half-life; thus there is a fast response to any adjustment in the dosage. In conjunction with early amniotomy, it has the potential to prevent prolonged labour, and may decrease the incidence of caesarean section if used as prevention, but not when used as treatment, of prolonged labour (Wei et al, 2013).

A Cochrane Review of the use of oxytocin versus placebo or delayed use of oxytocin showed no difference in caesarean section rates, while demonstrating a decrease in length of labour (Bugg et al, 2006, Bugg et al, 2011). Irrespective of how this Cochrane Review is interpreted, it must be recognised that the evidence available overall is contradictory and will probably remain so despite calls for further studies (Voutsos et al 2009). Therefore, the use of oxytocin in each labour and delivery unit should be supported by detailed, continuous, structured audit assessing both maternal and neonatal outcome using the Ten Group Classification System (Robson et al, 2001, Robson et al, 2013).

4.4 Development of an Irish National Guideline

Knowledge of the physiology, pharmacokinetics and risks of the hormone oxytocin is essential if its synthetic form, syntocinon, is to be used safely and effectively (Jonsson et al, 2007, Clark et al, 2007, Jonsson et al, 2008, Clark et al, 2009, Clark et al, 2011, Prasad et al, 2012). The physiology explains why the uterus is more sensitive to oxytocin as pregnancy advances, more sensitive in parous women rather than the nulliparous women, more sensitive in women who are in spontaneous labour rather than induction of labour, and more sensitive to women after prostaglandin administration.

Understanding the physiology of oxytocin also highlights the fact that it makes no sense to focus solely on oxytocin dosage, oxytocin half-life and the time for steady state levels of oxytocin without considering other clinical variables and, in particular, the effect of any individual oxytocin dose on the fetus and the uterus (Clark et al, 2007). Therefore, a safe and consistent mechanism for titrating the dose of oxytocin infusion against the condition of the fetus, the prevention of the uterus over-contracting (tachysystole) and the rate of cervical dilatation is as important as agreeing dosing regimen for infusing oxytocin (Bakker et al, 2007, Simpson et al, 2008, Frey et al, 2013, Heuser et al, 2013).

There is an advantage of having only one oxytocin regimen for all women on a delivery unit (Freeman et al, 2007, Hayes et al, 2008, Buchanan et al, 2012). Having accepted the concept of only one oxytocin regimen, the oxytocin regimen should also satisfy safety requirements recognising at the same time that the therapeutic doses of oxytocin vary in different groups of women. The oxytocin regimen that is described in this guideline may be classified as a high dose oxytocin regimen by international standards and should be implemented with that knowledge.

Nevertheless a low dose oxytocin regimen that includes a lower starting dose of oxytocin, a lower incremental dose of oxytocin and a longer period of time between the increase in oxytocin dose is clinically acceptable (Clark et al, 2007, Clark et al, 2009, Clark et al, 2011). Not using oxytocin in certain high risk groups of women is also clinically acceptable, but detailed, continuous, structured audit assessing both maternal and neonatal outcome using the Ten Group Classification System is recommended.

Ruptured membranes either spontaneously or artificially should be confirmed before oxytocin is started. Amniotomy (artificial rupture of the membranes) allows clinicians to examine the amount and colour of the amniotic fluid which is a marker of fetal wellbeing. Amniotomy may be sufficient to accelerate labour.

If an amniotomy is performed late in labour in a delivery unit that uses a low dose oxytocin regimen it may result in some groups of women never reaching the therapeutic dose of oxytocin required. In addition, having reached the therapeutic dose of oxytocin it may not be possible to continue the treatment for the required time because of other factors related to prolonged labour.

Performing amniotomy late in labour may also mean that less time is allowed after membrane rupture before oxytocin is considered, which may increase the incidence of oxytocin. This guideline does not make any recommendations on when to perform an amniotomy or when to start oxytocin because of poor progress related to inefficient uterine action after the membranes have ruptured. However, it is important to acknowledge and understand the close relationships between timing of amniotomy and oxytocin in spontaneous labour and be aware that in nulliparous women there is a generally a greater need for oxytocin and usually at a higher dose than in parous women. In induced labour the same relationship exists but clinical practice is more standardised.

The two main clinical problems caused by oxytocin are fetal intolerance and the uterus overcontracting (tachysystole). These may occur at low doses of oxytocin or at high doses of oxytocin. Ultimately it is the effect on the fetus and uterus that is the final arbitrator of safety. Tachysystole is defined in this guideline as

more than 7 contractions in 15 minutes in nulliparous women and more than 5 contractions in 15 minutes in multiparous women. The main advantage of using 15 minutes rather than 10 minutes is the clarity of instruction to the health professional when to increase and when to decrease the dose of oxytocin. In addition fifteen minutes rather than 10 minutes allows a longer period to average out the contractions and is also the time when the dose of oxytocin is normally changed. The reason for a different and more conservative definition for the acceptable number of contractions over 15 minutes in multiparous women is a precautionary measure because oxytocin should only rarely be required in these women and usually require a much lower dose of oxytocin.

Finally, uterine rupture (secondary to treatment with oxytocin) is more likely to occur in the multiparous woman particularly if she has a previous uterine scar. In a nulliparous woman, the uterus is immune to rupture in the absence of a uterine scar.

Every maternity unit should have a single guideline for the use of oxytocin to accelerate or induce labour which is based on the national guideline. Care in the delivery units should be based on safety, simplicity and quality. All staff working on the delivery unit should have detailed knowledge of the physiology, pharmacokinetics and risks of oxytocin.

The term hypertonus is defined as a prolonged contraction and the term hyperstimulation is defined as when either tachysystole or hypertonus results in a non-reassuring cardiotachograph. In discussing doses of oxytocin, milliunits/minute (mU/min) only must be used and should not be confused with the concentration of oxytocin in the infusion.

4.5 Contraindications to Oxytocin

- Non-reassuring fetal testing
- Over-contracting (tachysystole) of the uterus
- Previous scar on the body of uterus such as previous uterine perforation, classical section or myomectomy (nulliparous or parous women)
- Transverse or oblique lie of the fetus
- Malpresentation such as face, brow or breech

4.6 Additional caution with Oxytocin

- 4.6.1 In women with a previous caesarean section the use of oxytocin to either accelerate or induce labour increases the risk of uterine rupture.
- 4.6.2 In multiparous women, in particular, grand multiparous women
- 4.6.3 In women in preterm labour.
- 4.6.4 In women with a history of myocardial ischemia or pre-existing cardiovascular disease because changes in blood pressure and heart rate should be avoided.
- 4.6.5 In women with a long QT interval (Martillotti et al,2012)

4.7 Risks of Oxytocin

- 4.7.1 Fetal hypoxia, particularly if the baby is already growth restricted or the frequency of uterine contractions are excessive.
- 4.7.2 Uterine rupture in multiparous women, particularly if the uterus was previously scarred
- 4.7.3 Water intoxication associated with maternal and neonatal hyponatremia. This is more likely to occur when high doses of oxytocin have been given with large amounts of electrolyte-free fluid.
- 4.7.4 Interaction with inhalation anaesthetics such as cyclopropane, enflurane, halothane and isoflurane. Occasionally, this may result in hypotension or cardiac rhythm disturbances.
- 4.7.5 Endogenous oxytocin may be found in small quantities in mother's breast milk but there is no evidence that it is harmful to the newborn.
- 4.7.6 Prostaglandins may potentiate the uterotonic effect of oxytocin and vice versa.

5. Methodology

Medline, the Cochrane Library and other databases were searched for reviews on both oxytocin acceleration and induction. Searches were limited to humans and articles published between June 1985 and June 2015. Other national and international guidelines were sought.

In particular, the following guidelines were reviewed: NICE guideline No 55 'Care of healthy women and their babies during childbirth' (2007), NICE guideline No 70 'Induction of labour' (2008), ACOG Practice Bulletin No 107 'Induction of labour' (2009), ACOG Optimizing Protocols in Obstetrics (2011) 'Oxytocin for Induction', NSW Health, Australia, Policy Directive 'Maternity – Oxytocin for the Induction of Labour at or Beyond Term' (2011), SOGC Clinical Practice Guideline No 296 'Induction of labour' Leduc et al (2013), Auckland District Health Board 'Oxytocin (Syntocinon) for Induction and Acceleration of Labour (2013), WHO recommendations for acceleration of labour (2014), SOGC Clinical Practice Guideline No 296 'Induction of labour' Leduc et al (2013).

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6. Clinical guideline

Introduction

It is important to emphasise again that irrespective of the dose of oxytocin and the regimen used, it is the clinical effect on the baby and the uterus that is crucial.

If the membranes are intact, an amniotomy should be performed before oxytocin is commenced.

6.1.0 Acceleration of labour

Nulliparous Women

6.1.1

A senior midwife may commence oxytocin in a nulliparous woman in the first or second stage of labour at ≥ 37 weeks' gestation (with a singleton pregnancy and cephalic presentation).

6.1.2

Oxytocin should not be commenced if there is suspicion of non-reassuring fetal testing.

6.1.3

Continuous electronic fetal monitoring should be performed for a minimum of 20 minutes before starting oxytocin, and should be continued until the baby is delivered. If there is non-reassuring fetal testing the oxytocin should not be commenced until the CTG trace has been reviewed by a senior obstetrician and prescribing oxytocin is the responsibility of the obstetrician.

Multiparous without a previous scar

6.1.4

Before a multiparous woman in the first or second stage of labour is started on oxytocin, a clinical assessment must be performed by a senior obstetrician.

6.1.5

Continuous electronic fetal monitoring should be performed for a minimum of 20 minutes before starting oxytocin, and should be continued until the baby is delivered.

6.1.6

Before a decision is made to commence oxytocin the frequency of uterine contractions needs to be monitored and recorded in the clinical notes.

Multiparous woman with a previous caesarean section

6.1.7

Before a multiparous woman with a low transverse uterine scar in labour is started on oxytocin, a clinical assessment should be performed by a senior obstetrician. The decision to start oxytocin should be made by a consultant obstetrician.

6.1.8

Continuous electronic fetal monitoring should be performed for a minimum of 20 minutes before starting oxytocin, and should be continued until the baby is delivered.

6.1.9

Before a decision is made to commence oxytocin the frequency of contractions needs to be monitored and documented and recorded in the notes.

6.1.10

The decision to continue treatment with oxytocin should be reviewed made by a consultant obstetrician if the woman is not delivered within two hours.

Twin Pregnancy

6.1.11

The decision to accelerate labour in a twin (or multiple) pregnancy should be made by a senior obstetrician.

6.1.12

A CTG tracing of both babies must be commenced before administering the oxytocin infusion. If there is any cause for concern the oxytocin should not be commenced until the CTG trace has been reviewed by a senior obstetrician.

Pre-term Delivery

6.1.13

The decision to accelerate labour in a pre-term pregnancy should be made by a senior obstetrician.

6.2.0 Induction of labour

6.2.1

The decision to commence oxytocin to accelerate after induction has been started by other means must be made by a senior obstetrician and recorded in the clinical records.

6.2.2

The decision to commence oxytocin to induce labour must be made by a senior obstetrician and recorded in the clinical records.

6.2.3

The decision to induce a woman with a previous low transverse uterine scar should be made following discussion with a consultant obstetrician.

6.3.0 Procedure for administration of Oxytocin Infusion

Acceleration and Induction of labour

6.3.1

A standard dose of 10 iu oxytocin is added to 1 litre of normal saline (NaCl) 0.9%.

6.3.2

An oxytocin drug additive label is placed on the infusion bag and signed, dated and timed by the person adding the drug and by the person who checked it.

6.3.3

The oxytocin should be administered using an infusion pump. Oxytocin in labour should be constituted by adding 10 IU oxytocin to 1 litre of 0.9% normal saline starting at an infusion rate of 1-5mU/min (6-30 ml per hour). The infusion rate may be increased by 1-5mU/min (6-30ml/hour) every 15-30 minutes up to a maximum of 30mU/min (180 ml/hour).

6.3.4

The oxytocin infusion rate should be titrated against the fetal heart rate, frequency of uterine contractions and progress in labour. If there is non-reassuring fetal testing present while on oxytocin, the woman should be reviewed by an obstetrician. Consideration should be given to performing a fetal blood sample and reducing or stopping oxytocin.

6.4.0 Over-contracting (Tachysystole)

6.4.1

The rate of the oxytocin infusion is increased until a maximum dose of 30mu/min (180ml/hr) is reached in the absence of tachysystole or concern for fetal wellbeing.

6.4.2

The frequency of uterine contractions in women receiving oxytocin should be monitored and recorded in the clinical records.

In nulliparous women receiving oxytocin the frequency of uterine contractions should be monitored and recorded in the clinical records. The frequency of uterine contractions should be measured over 15 minute intervals. These intervals must start on the hour, quarter past the hour, half past the hour, or quarter to the hour. If the rate of contractions exceeds 7 in any of these 15 minute intervals, a senior midwife should review the labour and reduce the rate of infusion until the frequency no longer exceeds 7 in 15 minutes.

In multiparous women receiving oxytocin the frequency of uterine contractions should be monitored and recorded in the clinical records. The frequency of uterine contractions should be measured over 15 minute intervals. These intervals must start on the hour, quarter past the hour, half past the hour, or quarter to the hour. If the rate of contractions exceeds 5 in any of these 15 minute intervals, a senior midwife should review the labour and reduce the rate of infusion until the frequency no longer exceeds 5 in 15 minutes.

6.4.3

The use of oxytocin should be supported by the availability of intrapartum fetal blood sampling in all maternity units

6.4.4

Titration of the oxytocin infusion may at any stage be maintained at the same rate, decreased or discontinued at the discretion by the senior midwife or senior obstetrician.

6.4.5

If the oxytocin infusion is discontinued for any reason the number of uterine contractions in a 15 minute period should continue to be recorded and documented by the midwife until delivery.

6.4.6

A decision to commence or recommence oxytocin in women where there has been concern about the fetal heart is the responsibility of a senior obstetrician.

6.4.7

If there is evidence of hyperstimulation (tachysystole or hypertonus with an unreassuring cardiotocograph), the following steps must be taken:

- Stop the oxytocin infusion immediately.
- Inform the senior midwife and senior obstetrician.
- Consider immediate delivery if fetal heart does not recover.
- In exceptional circumstances consider tocolysis.

If the hyperstimulation resolves any decision to recommence the oxytocin is the responsibility of a senior obstetrician.

6.5.0 Use of Oxytocin in the 2nd stage

Nulliparous Woman

6.5.1

CTG monitoring should be commenced at least 20 minutes before starting the oxytocin infusion.

6.5.2

The decision to accelerate labour and commence oxytocin in nulliparous women with a single cephalic pregnancy ≥ 37 weeks gestation, cephalic presentation and

a normal CTG (cardiotocograph) in the second stage of labour may be taken by a senior midwife

6.5.3

The oxytocin is commenced at 1-5mu/min (6-30 mls /hr) and titrated upward by 1-5mu/min (6-30 mls/hr) in 15 minute intervals to a maximum of 30mu/min (180mls/hr).

6.5.4

The number of uterine contractions is palpated and documented by the midwife.

Multiparous without a previous caesarean section

6.5.5

Before a multiparous woman in the first or second stage of labour is started on oxytocin, a clinical assessment must be performed by a senior obstetrician.

The decision to start oxytocin in the second stage of labour in a multiparous woman without a uterine scar should be made by a consultant obstetrician.

Multiparous with a previous caesarean section

6.5.6

If the woman has a uterine scar, oxytocin should not be started in the second stage of labour

Twin Pregnancy

6.5.7

If used before delivery of first twin the decision to use oxytocin needs to be discussed with a consultant obstetrician.

6.5.8

Oxytocin infusion is used when clinically indicated in the second stage of labour after delivery of the first twin. The decision and dose required is the responsibility of the senior obstetrician present at the delivery.

6.6.0 Fetal wellbeing

6.6.1

Continuous electronic fetal monitoring should be performed for a minimum of 20 minutes before starting oxytocin, and should be continued until the baby is delivered.

6.6.2

If there is non-reassuring fetal testing **or** a poor quality CTG the midwife in charge should be informed immediately and if clinically indicated the oxytocin infusion stopped immediately.

6.6.3

If there is non-reassuring fetal testing **or** a poor quality CTG the midwife in charge should be informed immediately and a fetal scalp electrode attached to ensure the quality of the CTG providing there are no other contraindications.

6.6.4

If there is non-reassuring fetal testing the CTG should be reviewed by a senior obstetrician. This may necessitate fetal blood sampling to exclude acidosis.

6.6.5

A decision to commence or recommence oxytocin in women where there has been non-reassuring fetal testing is the responsibility of a senior obstetrician.

6.7.0 Documentation/Audit**6.7.1**

It is the responsibility of the clinician administering the oxytocin to record this in the appropriate section of the woman's healthcare records.

6.7.2

The dose, route and rate of infusion at which the oxytocin is administered should also be documented on the partogram.

6.7.3

The use of oxytocin should be audited by all maternity units and should be analysed using the Robson Ten Group Classification.

6.8

As the evidence favouring individual oxytocin regimes is not strong, the senior management team in individual units may opt for a lower dose regime than that recommended in this guideline.

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8. Implementation Strategy

- Distribution of guideline to all members of the Institute and to all maternity units.
- Distribution to the Directorate of the Acute Hospitals for dissemination through line management in all acute hospitals.
- Implementation through HSE Obstetrics and Gynaecology Programme local implementation boards.
- Distribution to other interested parties and professional bodies.

9. Key Performance Indicators

All maternity units should audit their use of oxytocin to accelerate or induce labour. The information collected should be analysed using the Robson Ten Group Classification System (Robson, 2001, Robson et al, 2013). In individual cases of adverse clinical outcomes whether oxytocin was used for either acceleration or induction any review at departmental multidisciplinary meetings should consider whether the hospital guidelines were followed or not.

10. Qualifying statement

These guidelines have been prepared to promote and facilitate standardisation and consistency of practice using a multidisciplinary approach. Clinical material offered in this guideline does not replace or remove clinical judgement or the professional care and duty necessary for each pregnant woman. Clinical care carried out in accordance with this guideline should be provided within the context of locally available resources and expertise.

This guideline does not address all elements of standard practice and assumes that individual clinicians are responsible for:

- Discussing care with women in an environment that is appropriate and which enables respectful confidential discussion.
- Advising women of their choices and ensure informed consent is obtained.
- Meeting all legislative requirements and maintaining standards of professional conduct.
- Applying standard precautions and additional precautions, as necessary, when delivering care.
- Documenting all care in accordance with local and mandatory requirements.

11. Appendices

Appendix 1: Robson's 10 Group Classification System

Robson's 10 Group Classification System (TGCS)

- Group 1: Nulliparous, singleton, cephalic, $\geq 37/40$, spontaneous labour
- Group 2: Nulliparous, singleton, cephalic, $\geq 37/40$ induced or pre-labour CS
- Group 3: Multiparous (excluding previous CS), singleton, cephalic, $\geq 37/40$, spontaneous labour
- Group 4: Multiparous (excluding previous CS), singleton, cephalic, $\geq 37/40$ induced or pre-labour CS
- Group 5: Previous CS, singleton, cephalic, $\geq 37/40$, induced or pre-labour CS
- Group 6: All nulliparous breech
- Group 7: All multiparous breech (including previous CS)
- Group 8: All multiple pregnancies (including previous CS)
- Group 9: All presentations other than cephalic or breech (including previous CS)
- Group 10: All singleton, cephalic, $< 37/40$ (including previous CS)