Oxytocin for Induction/ Augmentation of Labour Guideline.

Guideline information

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Summary of document:
This guideline is to provide guidance in the administration of Oxytocin infusion as part of induction of labour, augmentation of labour and the use of oxytocin in the third stage of labour, to ensure a consistent and safe standard of care thereby reducing maternal and fetal morbidity and mortality.

Scope:
This guideline is for the use of obstetricians and midwives when caring for women who require oxytocin for induction of labour, augmentation in labour and in third stage of labour.

The guidance uses the term “woman” (pronouns she or her) to describe individuals whose sex assigned at birth was female, whether they identify as female, male or non-binary. It is important to acknowledge it is not only people who identify as women for whom it is necessary to access women’s health and reproductive services. Therefore, this should include people who do not identify themselves as women but who are pregnant or have recently given birth. Obstetric and midwifery services and delivery of care must therefore be appropriate, inclusive and sensitive to the needs of those individuals whose gender identity does not align with the sex that they were assigned at birth.

To be read in conjunction with:
NICE guideline NG207: Induction of Labour
Overview | Inducing labour | Guidance | NICE- opens in new tab
NICE guideline NG 245: Intrapartum Care
Overview | Intrapartum care | Guidance | NICE- opens in new tab
667 Induction of Labour for Post maturity (low risk pregnancies) Guideline - opens in a new tab
655 Assisted Vaginal Delivery Guideline -opens in new tab
813 Continuous Intrapartum Electronic Fetal Monitoring Guideline - opens in a new tab
621 Hypertension in pregnancy guideline - opens in a new tab

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Keywords: Oxytocin, Induction, Augmentation

Glossary of terms

IOL	Induction of labour
GTN	Glycerine Trinitrate
FGR	Fetal growth restriction
SGA	Small for gestational age

Contents

Scope

This guideline is for the use of obstetricians and midwives providing care for women who require oxytocin infusion for induction of labour or augmentation in labour and oxytocin in third stage of labour.

Aim

To ensure consistent and safe standard of care thereby reducing maternal and fetal morbidity and mortality.

Objectives

The aim of this guideline will be achieved by the following objectives

- Clear guidance of the appropriate use of oxytocin.
- Use of risk assessment prior to use of oxytocin.
- Fetal and Maternal monitoring during use of oxytocin

1. Introduction

Oxytocin is the drug prescribed to induce, or augment uterine activity, once the membranes holding liquor around the fetus have ruptured. Oxytocin is administered intravenously, with the dose being titrated against the frequency and duration of uterine activity, and with the fetal heart rate being monitored continuously with electronic monitoring devices.

2. Indication for use of oxytocin

- To induce or augment labour after spontaneous or artificial rupture of membranes
- As a bolus dose for active management of the third stage of labour
- As a bolus dose or IV infusion for the treatment of postpartum haemorrhage

Definitions

- **Induction of labour** is defined as an intervention designed to artificially initiate contractions leading to progressive dilatation and effacement of the cervix and birth of the baby.
- **Augmentation** is an intervention initiated when progress of labour is delayed following spontaneous onset of labour.

3. Management

3.1. Potential risks and complications associated with oxytocin use.

- Increased level of pain

- Uterine hyperstimulation
- Fetal distress
- Fetal hypoxia (especially in cases with FGR/SGA or hyperstimulation)
- Uterine rupture in multiparous women (particularly with scarred uterus)
- Maternal and neonatal hyponatremia (when large dose/ volume of oxytocin are administered alongside large volumes of electrolyte fluids.

3.2. Risk assessment prior to administration of Oxytocin

3.2.1. Considerations

Prior to commencing oxytocin the Midwife and Obstetrician must consider the following:

- Parity
- Multiple pregnancy
- The presence of uterine contractions
- Fetal gestation, presentation, station, position on abdominal palpation and vaginal examination
- Fetal wellbeing should be ascertained by confirming a normal 30 minute CTG tracing prior to commencement of infusion
- Membranes should be ruptured.
- The mother's emotional wellbeing and pain management. An epidural may be recommended.
- Maternal informed consent should be obtained after discussion of the use and potential risks of oxytocin have been explained. This should be recorded in the mothers' notes.

3.3. Contraindications

Oxytocin should not be used in the following situations:

- Non-reassuring fetal monitoring results.
- Uterine tachysystole (excessive uterine contractions).
- History of a uterine scar involving the uterine **body** (e.g. previous uterine perforation, classical caesarean birth, or myomectomy), regardless of parity.
- Transverse or oblique fetal lie.
- Any condition in which spontaneous labour or vaginal delivery is considered unsafe or not recommended.
- Severe cardiovascular disease
- Severe pre-eclampsia

3.3.1. Use with caution

In the presence of risk factors oxytocin infusion can be used with caution and only following discussion with the Consultant Obstetrician in women who have any of the following:

- Previous caesarean birth*
- Breech presentation
- Multiple pregnancy
- Grand multiparity
- Meconium stained liquor
- Fetal Growth Restricted or Small for Gestational Age baby
- Preterm Labour
- In women with a history of myocardial ischemia or existing cardiovascular conditions.
- In women with a prolonged QT interval (Martillotti et al., 2012)

***Oxytocin should not be prescribed to a mother with any uterine scar in labour without discussion with the on-call Consultant Obstetrician**.

3.4. Oxytocin infusion for Induction of Labour (IOL)

- Oxytocin infusion can be commenced **6 hours AFTER** administration of **vaginal prostaglandin tablet /gel**
- Oxytocin infusion can be commenced **30 mins AFTER** removal of **Propess vaginal pessary**
- Oxytocin infusion can be commenced **4 hours AFTER the last dose** of **oral misoprostol.**

3.5 Oxytocin infusion for Delay in progress of labour (Augmentation)

The diagnosis of delay in first stage of labour needs to be made after taking into consideration all aspects of progress in labour and should include:

- Cervical dilation of <2cms in 4 hours for first labours
- Cervical dilation of <2cms in 4 hours or slowing in the progress of labour for second or subsequent labours
- Descent of the fetal head
- Changes in the strength, duration and frequency of uterine contractions

Oxytocin administration for slow progress in the **2nd stage** has been shown **not** to affect the outcome.

3.6 Initiating Oxytocin Infusion

Oxytocin infusion must be prescribed by and signed for by a member of the Obstetric team on p.11 of the In-Patient Medication Administration Record.

Example:

DATE & START TIME	INFUSION FLUID		ROUTE	MEDICINE ADDED		INFUSION RATE OR DURATION	PRESCRIBER'S SIGNATURE	PHARM
	TYPE/STRENGTH	VOLUME		APPROVED NAME	DOSE			
1/1/25	Sodium Chloride 0.9%	500mL	IV	Oxytocin	10 units	As per protocol	*A Doctor* Beep No. 007	

- Commence infusion following artificial rupture of the membranes (ARM), or after spontaneous rupture of the membranes (SROM) and confirmation of a normal CTG.
- Continuous CTG monitoring must be commenced using the Intrapartum CTG Classification sticker
- The partogram must be commenced in the Labour and Delivery Record
- Oxytocin may only be added by those members of staff certified as competent to mix intravenous solutions or a member of staff undergoing training and watched by a certified member of staff. (see Appendix 1)
- The infusion should be administered via a B/Braun infusion pump with a non-return valve.
- Oxytocin Infusions must not be pre-prepared in advance. Post partum oxytocin infusions should be prepared at the time of birth and not in advance

The following regime must be used for primigravida and Multigravida:
ENSURE that the ***RATE*** is recorded on the partogram and fluid balance chart.

OXYTOCIN REGIME Dilute 10units Oxytocin in 500mls of Sodium Chloride 0.9%. Increase at intervals of 30 minutes		
Time after starting **(minutes)**	Oxytocin dose (mu/min) **DOSE**	Volume infused (ml/hr) **RATE**
0	1	3
30	2	6
60	4	12
90	8	24
120	12	36
150	16	48
180	20	60
210 *Discuss with Reg/ Consultant*	*24*	*72*
240	*28*	*84*

270	*32*	*96*

Unlicensed use

When patient is required to be fluid restricted e.g. Hypertension, severe preeclampsia, use the **Concentration regime of Oxytocin** (See Appendix 2)

3.7 Aim of the regime

The regime is applicable to primigravida and multigravida women.
The minimum dose possible of Oxytocin should be used and this should be titrated against uterine contractions aiming for a maximum of 4 - 5 contractions in a 10 minute period.
NOTE Rates above 60 ml/hr require Registrar, Staff Grade or Consultant approval.
In exceptional circumstances the use of *higher or varied* doses is a consultant decision only.

3.8. Maternal and Fetal Monitoring

- The dose of Oxytocin being administered should be recorded on the partogram reflecting increases/ decreases in the dose.
- All adjustments to the dose should be recorded on the CTG tracing
- All recordings should be written on to the partogram

3.8.1. Fetal Monitoring

The fetus should be continuously monitored according to the CTG guidelines for first and second stages of labour.

Normal CTG trace: titrate the oxytocin dose as per protocol until a contraction pattern of three to four contractions every 10 minutes is achieved.

Gradually evolving Hypoxia CTG trace: Do not increase the oxytocin dose. Await a review by an obstetrician. If there are signs of uterine hyperstimulation, consider reducing or stopping the oxytocin infusion.

Subacute or Acute Hypoxia CTG trace: Abnormal CTG Trace or Prolonged Deceleration: Immediately stop the oxytocin infusion and initiate conservative measures to improve the fetal condition. A thorough assessment must be carried out by an obstetrician

Consider use of tocolytics (see section 7).

Consider restarting oxytocin in the first stage of labour if:

- Obstetric review has been carried out and CTG has normalised for 30 minutes and no evidence of hypoxia or infection.
- The woman agrees that oxytocin can be restarted.

When restarting the dose must start at the starting dose (**do not** restart on previous dose)

3.8.2. Maternal monitoring.

- Record Maternal pulse hourly and blood pressure four hourly, unless otherwise indicated.
- Regular monitoring of bladder emptying
- Ongoing attention to the woman's emotional and psychological well-being.
- Continuous Monitoring: Maternal contractions should be continuously monitored, with the frequency of contractions documented on the partogram.

In order for the CTG to be assessed accurately the recording of the contractions is a vital element. Every effort should be made to record on the CTG the presence of contractions.

- **Palpate** contractions for frequency, strength, duration and resting tone every half hour and record on the partogram. **Do not rely on CTG to assess strength of contractions**.

If monitoring contractions is not possible:

- Change maternal position
- Consider using the extra-large straps for women with increased BMI
- Palpate contraction and place toco on abdomen where contraction palpated at strongest
- Escalate to senior midwife
- If the toco is not picking them up the midwife may use another method to ensure this is done, e.g. press the toco lightly during contraction, or mark the CTG.

Any difficulties in monitoring the contractions should be evidenced within the maternal records including actions taken

4. Assessment of Progress following commencement of Oxytocin

4.1. Induction of Labour

- When Oxytocin used during IOL the progress should be assessed four hours after the onset of regular contractions.
- If there is <2cm progress an obstetric review is required.
- If there is 2cms or more progress, vaginal examinations should be advised 4-hourly.

4.2. Augmentation of Labour

- Progress in labour should be assessed up to four hours after commencing Oxytocin for augmentation of labour.

5. Tachysystole

- This is the presence of 5 or more labour contractions within 10 minutes **with normal** fetal heart pattern**.**
- In the absence of fetal compromise. If ≥5 contractions are palpated in 10 minutes and lasting up to 60 seconds, there may be tachysystole.
- If this continues in the next 10 minutes reduce the infusion immediately to the last incremental dose.
- If the rate of contractions does not decrease to < 5 contractions in 10 minutes, **STOP** the Oxytocin infusion

6. Hyperstimulation

- **If there is the presence of any uterine activity which affects the heart rate pattern**
- **If the contractions are equal to or greater than 5 in every 10 minutes together with signs of fetal compromise TURN OFF the Oxytocin and inform the midwife in charge and the senior obstetrician.**

Consider using tocolytics.

7. Use of Tocolytics

In labour, or during induction of labour, the administration of Terbutaline or sublingual GTN should be considered where there are any concerns about the baby's wellbeing (where cardiotocograph fetal heart rate monitoring indicates non-reassuring or abnormal features) and a reduction in contraction frequency is considered appropriate or if the prolonged deceleration persists after stopping oxytocin(see appendices)

If other risk factors e.g SGA/ FGR are present the use of tocolytics should be implemented sooner.

Where two doses of either medication have been given and there is no improvement in the fetal heart, consider expediting the birth

7.1. Terbutaline

- Appropriately trained midwives on labour ward Under, are able to administer a single dose of 250micrograms Terbutaline subcutaneously as per Terbutaline PGD (opens in new page) if there is no senior Obstetrician immediately available. It is important that the obstetric clinical review still occurs.

- Administer Terbutaline 250 microgram by subcutaneous injection to relax the uterus.
- This dose can be repeated once after 15 minutes in the presence of ongoing concerns with fetal wellbeing. (see appendix)

7.2. Glycerine Trinitrate (GTN)

- Administered GTN 400microgram as sublingual spray. (see appendix)

NB: The above drugs are not licensed for use for this indication. NICE recommends informed consent should be obtained and documented.

Improvement after administration of tocolytics usually begins within 5 minutes as utero-placental perfusion is restored due to the relaxation of the smooth uterine muscle.

Side effects may include transient maternal tachycardia, flushing of skin and headache.

8. Uterine Resting Tone

Remember : assess uterine resting tone.

Contractions that are less than 5:10 but lasting more than 60 seconds may mean that there is little resting tone between contractions and therefore these could lead to fetal compromise and should prompt you to reduce the Oxytocin infusion

9. When to Stop Oxytocin

The oxytocin infusion should be stopped in the following situations and an obstetric review requested urgently	
FHR trace is classified as subacute or Acute	Signs of obstructed labour
Uterine contractions ≥5:10 with signs of fetal compromise	Cord prolapse
Suspicion of uterine rupture	Abnormal presentation diagnosed e.g. breech, arm presentation
Intrapartum haemorrhage	Maternal collapse

10. Use of Oxytocin in Third Stage of Labour:

- When normotensive and no known contraindications to ergometrine present give Ergometrine 500micrograms/oxytocin 5 units (Syntometrine®) for use
- If history of hypertension use: 10 international units of oxytocin (Syntocinon®) intramuscularly.
- Women who are admitted and deliver rapidly before their blood pressure can be

assessed in labour should be given 10 international units of oxytocin intramuscularly.

11. Discontinuing Oxytocin infusion following Vaginal Birth

- For mothers who have singleton delivery the Oxytocin infusion should be weaned down at quarter hourly intervals and uterine contraction and blood loss monitored.
- If the bleeding is heavier than expected, ask senior midwifery and obstetric review.

12. Auditable Standards

- Duration from commencement of oxytocin regime for induction of labour to start of onset of regular contractions
- Mode of delivery following commencement of oxytocin regime for induction of labour
- Mode of delivery following commencement of oxytocin regime for slow progress in labour
- Maternal measured blood loss
- Neonatal outcomes confirmed by APGAR Scoring and cord blood gas analysis in the event of operative birth

Reference:

National Institute for Health and Clinical Excellence. (2021). NICE guideline NG207: *Induction of Labour*
Overview | Inducing labour | Guidance | NICE

National Institute for Health and Clinical Excellence. (2023). Updated June 2025 NG235. *Intrapartum care*
Overview | Intrapartum care | Guidance | NICE

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Overview | Fetal monitoring in labour | Guidance | NICE

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https://www.medicines.org.uk/emc/product/9334/smpc
https://ranzcog.edu.au/wp-content/uploads/2022/05/Instrumental-vaginal-birth.pdf

Alfirevic Z, Kelly AJ, Dowswell T. Intravenous oxytocin alone for cervical ripening and induction of labour. Cochrane Database Syst Rev. 2009 Oct 7;2009(4):CD003246.

Appendix 1. Guide of the Preparation of Oxytocin Infusion

Oxytocin Infusion must be prescribed by an obstetrician on the IV page of patient drug chart

All Oxytocin infusions **must** be prepared at the time of use and checked by two competent and qualified staff (student midwives can be “third checker”). Oxytocin Infusions **must not** be **pre-prepared**

- Add 10 units of oxytocin to a 500ml bag of 0.9% Sodium Chloride. Invert bag several times to ensure mixing of the oxytocin in the diluent fluid.
- Complete in full and sign Hywel Dda ***Medication added*** label and use to label bag.
- Prime the pump IV giving set.
- Complete and sign the *Medilabel* label with amount of oxytocin in infusion e.g. 10 units oxytocin
- Attach Medilabel /oxytocin sticker label to infusion giving set tubing
- Turn on the infusion devise pump e.g. Braum.
- Access library and select maternity section
- Select oxytocin
- To avoid error, ENSURE that the CORRECT concentration of drug is selected as more than one oxytocin concentration is stored within library.
- Record and sign in drug chart and document fluid volume and drug on the Fluid Balance Record and maternal notes as appropriate

Note. For infection prevention all IV lines and bags should be changed every 24 hours

See Guideline for oxytocin regime.

Appendix 2. Concentrate Regime of Oxytocin for use in Fluid Restricted Patients

1. Oxytocin augmentation

10 international units (IU) oxytocin to be made up to 50ml with 0.9% sodium chloride (normal saline) (0.2units in 1ml)

A new infusion must be set up if continued treatment is required beyond 12 hours

ENSURE that the ***RATE*** is recorded on the partogram and fluid balance chart

Time after starting (mins)	Oxytocin dose (mu/min) **DOSE**	Volume infused (ml/hr) **RATE**
0	1	0.3
30	2	0.6
60	4	1.2
90	8	2.4
120	12	3.6
150	16	4.8
180	20	6
210 Discuss with Reg/ Consultant	*24*	*7.2*
240	*28*	*8.4*
270	*32*	*9.6*

Unlicensed use

2. Post-natal use

40 international units (IU) Oxytocin in 40mls Sodium Chloride (0.9%) (1 unit in 1ml)

Time **(mins)**	40IU in 40ml Normal Saline **(ml/hr) RATE**
60	10
120	10
180	10
249	10

ENSURE that the ***RATE*** is recorded on the partogram and fluid balance chart