NHS
Greater Glasgow and Clyde

CLINICAL GUIDELINE

Oxytocin use for Labour and Birth

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Important Note:

The online version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

Greater Glasgow & Clyde
Obstetric Formulary & Guideline Page

Oxytocin (Syntocinon®)

BNF 7.1.1 PROSTAGLANDINS AND OXYTOCICS

Oxytocin 10units/ml injection, 10units in 500ml prepared infusion bags. 40units in 500ml for use in Postpartum haemorrhage, prepared on Labour Ward.

Oxytocin is a potentially dangerous medicine. As it is in common use this fact may not be respected. Misuse of Oxytocin in labour is a common criticism in Obstetric litigation.

Oxytocin infusions for any indication are not pre-prepared at ward level in any clinical area (including delivery suites and theatres).

If a pre-prepared oxytocin infusion is unintentionally given before the baby is born, for example if it is confused with standard fluids or the intrapartum and postpartum infusions are confused, the woman's contractions will increase in frequency and strength. This can lower the baby's oxygen levels and alter their heart rate, increasing the risk of placental abruption.

Prolonged intravenous administration at high doses with large volume of fluid (as possible in inevitable or missed abortion or post partum haemorrhage) may cause water intoxication with hyponatraemia.

To avoid: use electrolyte containing diluent (i.e. not glucose) increase oxytocin concentration to reduce fluid, restrict fluid intake by mouth; monitor fluid and electrolytes.

Associated Guidelines:

- Delay in labour pathway (1165)
- Caesarean Birth (576)
- Post Partum Haemorrhage, Management (597)

Applicable unit policies:

- Adult IV drug Monographs folder
- Anaesthesia / Analgesia - Syntocinon infusion during caesarean birth post delivery
- Caesarean Birth
- Oxytocin.
- Syntocinon Pumps.
- Second stage - management of 2nd stage of labour in Primigravid women Spontaneous labour
- Midwifery formulary - Oxytocin.
- Postpartum Haemorrhage.
- Fetal loss guidelines

- Indications:

1. Management of third stage labour (unlicensed obstetric use).
2. Induction of labour - separate doses for primigravida women, parous women and those women undergoing vaginal birth after Caesarean birth.
3. Augmentation of labour - separate doses for primigravida women, parous women and those women undergoing vaginal birth after Caesarean birth.
4. Birth of second twin
5. Caesarean birth as prophylaxis against PPH
6. Incomplete, inevitable, or missed abortion

Table 1. Oxytocin infusion 10 units in 500ml

Time after starting (minutes)	Oxytocin dose (milliunits per minute)	Volume infused (ml/hour) of dilution Oxytocin 10 units in 500ml
0	1	3
30	2	6
60	4	12
90	8	24
120	12	36
150	16	48
180	20	60
210 *	24	72
240 *	28	84
270 *	32	96

Doses highlighted with (*) are quantities above those referred to in the summary of product characteristics of 20 milliunits per minute.

Indication: 1. Management of third stage labour.

For oxytocin use in the management of third stage please see “Post-Partum Haemorrhage, Management (597)”

https://rightdecisions.scot.nhs.uk/media/1837/597-pph-management-guideline.pdf

Oxytocin Use and Hyperstimulation

If oxytocin is used in labour it should be increased until there are 3 to 4 contractions in 10 minutes. If the contractions become more frequent than 4 in 10 minutes, reduce or stop the oxytocin until the woman is having 4 or fewer contractions in 10 minutes. The minimal effective dose of oxytocin should always be used to achieve a contraction pattern of 3 to 4 in a 10 minute period (NICE, 2025; European Guidelines on Perinatal Care, 2022).

Hyperstimulation is an overactivity of the uterus. Uterine tachysystole is 5 or more contractions in a 10 minute period for at least 20 minutes. Uterine hypersystole or hypertonicity is a contraction lasting for at least 2 minutes.

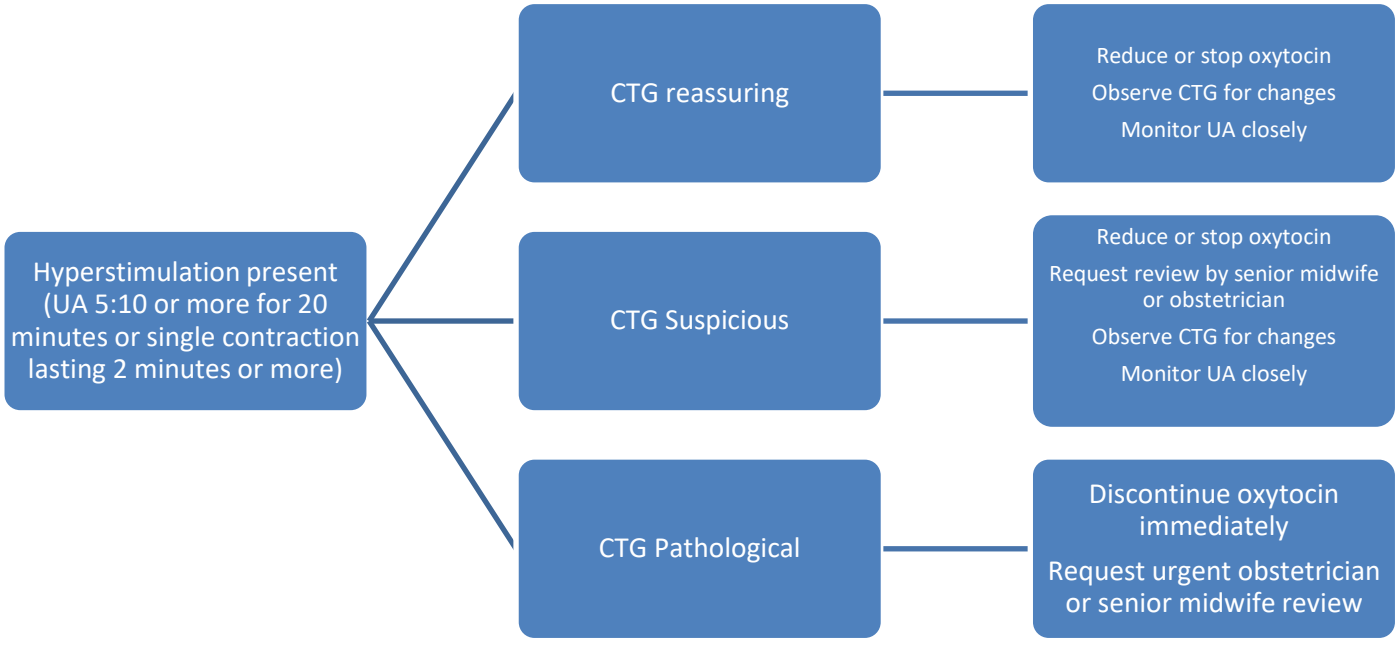
There may or may not be changes in the fetal heart rate pattern associated with hyperstimulation. Frequently seen changes are persistent decelerations, tachycardia, increased or decreased variability (NICE, 2025).

Even if a normal CTG pattern is present if contractions exceed 5 in 10 minutes for 20 minutes the oxytocin infusion rate should be reduced or discontinued if at lowest infusion rate. (European Guidelines on Perinatal Care, 2022).

If hyperstimulation is present and the CTG is suspicious then an urgent clinical assessment by an obstetrician or senior midwife is indicated and oxytocin should be reduced and consideration should be given to stopping the oxytocin infusion if at lowest infusion rate (European Guidelines on Perinatal Care, 2022).

Oxytocin infusion should be discontinued immediately if the CTG is pathological, and urgent obstetrician or senior midwife review sought (NICE, 2025).

Continued review by a senior obstetrician and consideration to administration of tocolytic drugs should be given when hyperstimulation remains after 10 minutes of discontinuing oxytocin infusion (NICE, 2025).



Following senior obstetric review and discussion with the woman the decision may be made to

recommence the oxytocin infusion.

There is no evidence to suggest an optimal dose that oxytocin infusion should be restarted at if it has been discontinued during 1st or 2nd stage of labour (either due to hyperstimulation or CTG concerns). It is acknowledged whilst recommencing the infusion from the first dose would be considered best practice this could also lengthen labour. Due to the increased time taken to titrate back to an effective dose this may have an overall impact on labour and birth outcomes.

The rate to restart should therefore be discussed with an obstetrician and a decision made based on the previous dose infused and the full clinical picture.

Indication: 2. Induction of labour.

Prior to commencing oxytocin infusion for induction of labour a woman should have -

- **reason for induction clearly documented**
- **spontaneous rupture of membrane (SROM) or forewater amniotomy (ARM)**
- **CTG monitoring commenced**

Primigravida Women - See BNF for restrictions on use.

Drug		Dose Primigravida Women	No. of doses	Route
Oxytocin infusion 10 units in 500ml Compound Sodium Lactate	Initial infusion rate set at	1mU/minute (3ml/hour)	Continuous	I.V. Inf.
	It may be gradually increased at intervals no shorter than 30 minutes, until a contraction pattern similar to that of normal labour is established. Aim for 3-4 good contractions in 10 minutes.	In practice this is achieved by doubling the dose at intervals of no less than 30 minutes to a maximum of 20mU/minute (60ml/hour). Further increase (see chart above) should be after discussion with Middle grade obstetrician.	Continuous	I.V. Inf.

Indication: 2. Induction of labour – continued.

Parous women- See BNF for restrictions on use.

These women have a significant risk of uterine rupture, whether or not they have had a previous caesarean birth, and whether or not they are in spontaneous or induced labour. The maximum dose should be at a rate of 16mU/minute (48ml/hour). **Dose increases above this must be documented in case notes by senior obstetric staff (Middle Grade rota or above).**

OXYTOCIN IS ADMINISTERED TO ACHIEVE 3-4 GOOD CONTRACTIONS IN 10 MINUTES. THE DOSE CAN OFTEN BE REDUCED TO MAINTAIN THIS. ONCE IN ESTABLISHED LABOUR A PAROUS WOMAN IS UNLIKELY TO NEED ESCALATING DOSES OF OXYTOCIN.

It is uncommon for a parous woman in spontaneous labour to require augmentation with oxytocin. Poor progress in both the first and second stage of labour indicates the need to exclude the following: malposition, malpresentation, Cephalopelvic, disproportion. Such patients require assessment by a middle grade obstetrician prior to discussion with a consultant.

Drug		Dose Parous patients	No. of doses	Route
Oxytocin infusion 10 units in 500ml Compound Sodium Lactate	Initial infusion rate set at	1mU/minute (3ml/hour)	Continuous	I.V. Inf.
	It may be gradually increased at intervals no shorter than 30 minutes, until a contraction pattern similar to that of normal labour is established. Aim for 3-4 good contractions in 10 minutes.	In practice this is achieved by doubling the dose at intervals of no less than 30 minutes to a maximum of 16mU/minute (48ml/hour).	Continuous	I.V. Inf.

Indication: 3. Augmentation of labour.

Augmentation of labour is appropriate where a delay in 1st or 2nd stage of labour has been confirmed.

Please see the Delay in labour pathway (1165) to determine if delay has occurred - https://rightdecisions.scot.nhs.uk/maternity-gynaecology-guidelines/maternity/common-obstetric-problems-intrapartum-labour-ward/delay-in-labour-pathway-1165/

Prior to commencing oxytocin infusion for augmentation of labour a woman should have -

- reason for induction clearly documented
- SROM or forewater ARM
- CTG monitoring commenced

Evidence of progress in labour should be apparent at the next assessment – please see the Delay in labour pathway (1165) for the definition of this progress.
Primigravida Women - See BNF for restrictions on use.

Drug		Dose Primigravida Women	No. of doses	Route
Oxytocin infusion 10 units in 500ml Compound Sodium Lactate	Initial infusion rate set at	1mU/minute (3ml/hour)	Continuous	I.V. Inf.
	It may be gradually increased at intervals no shorter than 30 minutes, until a contraction pattern similar to that of normal labour is established. Aim for 3 good contractions in 10 minutes.	In practice this is achieved by doubling the dose at intervals of no less than 30 minutes to a maximum of 20mU/minute (60ml/hour). If commenced for first time in 2nd stage of labour, intervals of no less than 30 minutes may be used.	Continuous	I.V. Inf.

Parous women- See BNF for restrictions on use.

*Prior to commencing oxytocin for augmentation of labour in parous women an obstetrician (Middle Grade rota or above) should perform a clinical assessment including a vaginal examination to exclude any evidence of obstructed labour, malposition, and /or malpresentation or CPD. A clinical assessment including a repeat VE should be performed after 2 hours of oxytocin to ensure effective progress.

These women have a significant risk of uterine rupture. Particularly high risk groups are women with previous caesarean birth or high parity (para >4), the maximum dose should be at a rate of 16mU/minute (48ml/hour). Dose increases above this must be documented in case notes by senior obstetric staff (Middle Grade rota or above).

Drug		Dose Parous patients	No. of doses	Route
Oxytocin infusion 10 units in 500ml Compound Sodium Lactate	Initial infusion rate set at	1mU/minute (3ml/hour)	Continuous	I.V. Inf.
	It may be gradually increased at intervals no shorter than 30 minutes, until a contraction pattern similar to that of normal labour is established. Aim for 3-4 good contractions in 10 minutes.	In practice this is achieved by doubling the dose at intervals of no less than 30 minutes to a maximum of 16mU/minute (48ml/hour). Only a consultant can commence oxytocin for first time in 2nd stage of labour.	Continuous	I.V. Inf.

Indication: 4. Birth of second twin in those women who do not have an oxytocin infusion running and after confirming a longitudinal lie and a normal CTG.

Following the birth of the 1st twin the following should be done

- palpation to confirm longitudinal lie and cephalic presentation
- allow descent of head into pelvis
- VE to perform ARM if required (FSE application if external CEFM difficult)
- assess UA for 3-4:10 pattern
- if UA reduced then commence oxytocin infusion as per augmentation guideline 2nd stage according to parity (see tables above)

Drug		Dose	No. of doses	Route
Oxytocin infusion 10 units in 500ml Compound Sodium Lactate	Initial infusion rate set at	2mU/minute (6ml/hour)	Continuous	I.V. Inf.
	It may be gradually increased at intervals no shorter than 30 minutes, until a contraction pattern similar to that of normal labour is established. Aim for 3 good contractions in 10 minutes.	In practice this is achieved by doubling the dose at intervals of no less than 30 minutes to a maximum of 16mU/minute (48ml/hour).	Continuous	I.V. Inf.

Consideration should be given to ensuring appropriate inter-birth time is achieved. If increasing the oxytocin infusion sooner is considered this needs to be at the discretion of the consultant.

Indication: 5. Post Caesarean Birth prophylaxis

Planned and unplanned caesarean birth are associated with increased risk of PPH. Uterine atony after long labour. Multiple pregnancy and high parity are particular risks.

Drug	Dose	No. of doses	Route
Oxytocin injection	5 units after delivery of the baby then see below	once only	IV BOLUS slowly
Oxytocin infusion equivalent to 15 units in a fresh bag of 500ml Compound Sodium Lactate.	Aim for infusion to be administered over at least 30 minutes.	Continuous	I.V. Inf.

Notes

*Oxytocin Maximum dose should rarely exceed 50 units total.

Indication: 6. Incomplete, inevitable or missed abortion – when prostaglandins have not been successful or are contraindicated.

Drug	Dose	No. of doses	Route
Oxytocin injection	5 units then see below if necessary	Once only	IV BOLUS slowly
Oxytocin infusion 10 units in 500ml Compound Sodium Lactate.	Initially 20 to 40 milliunits/minute (60ml/hr to 120ml/hr) or higher	Continuous	I.V. Inf.

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