

# Oxytocin augmentation and induction of labour infusion

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## Note:

This guideline provides advice of a general nature. This statewide guideline has been prepared to promote and facilitate standardisation and consistency of practice, using a multidisciplinary approach. The guideline is based on a review of published evidence and expert opinion.

Information in this statewide guideline is current at the time of publication.

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Health practitioners in the South Australian public health sector are expected to review specific details of each patient and professionally assess the applicability of the relevant guideline to that clinical situation.

If for good clinical reasons, a decision is made to depart from the guideline, the responsible clinician must document in the patient's medical record, the decision made, by whom, and detailed reasons for the departure from the guideline.

This statewide guideline does not address all the elements of clinical practice and assumes that the individual clinicians are responsible for discussing care with consumers in an environment that is culturally appropriate and which enables respectful confidential discussion. This includes:

- The use of interpreter services where necessary,
- Advising consumers of their choice and ensuring informed consent is obtained,
- Providing care within scope of practice, meeting all legislative requirements and maintaining standards of professional conduct, and
- Documenting all care in accordance with mandatory and local requirements

## Explanation of the aboriginal artwork:

The aboriginal artwork used symbolises the connection to country and the circle shape shows the strong relationships amongst families and the aboriginal culture. The horse shoe shape design shown in front of the generic statement symbolises a woman and those enclosing a smaller horse shoe shape depicts a pregnant women. The smaller horse shoe shape in this instance represents the unborn child. The artwork shown before the specific statements within the document symbolises a footprint and demonstrates the need to move forward together in unison.



**Australian Aboriginal Culture is the oldest living culture in the world yet Aboriginal people continue to experience the poorest health outcomes when compared to non-Aboriginal Australians. In South Australia, Aboriginal women are 2-5 times more likely to die in childbirth and their babies are 2-3 times more likely to be of low birth weight. The accumulative effects of stress, low socio economic status, exposure to violence, historical trauma, culturally unsafe and discriminatory health services and health systems are all major contributors to the disparities in Aboriginal maternal and birthing outcomes. Despite these unacceptable statistics the birth of an Aboriginal baby is a celebration of life and an important cultural event bringing family together in celebration, obligation and responsibility. The diversity between Aboriginal cultures, language and practices differ greatly and so it is imperative that perinatal services prepare to respectively manage Aboriginal protocol and provide a culturally positive health care experience for Aboriginal people to ensure the best maternal, neonatal and child health outcomes.**

## Purpose and Scope of PPG

This guideline provides clinicians with information for the safe administration of an oxytocin infusion for the purposes of augmentation and/or induction of labour. It includes information on precautions, preparation, administration and adverse effects.



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Table I: Oxytocin induction/augmentation of labour dosage regimen

Oxytocin induction / augmentation of labour dosage regimen	
<b>Preparation</b>	<ul style="list-style-type: none"> <li>&gt; Add 10 IU oxytocin to one litre of Hartmann's solution or sodium chloride 0.9 %</li> <li>&gt; Use an appropriate volumetric infusion pump</li> <li>&gt; Infuse as a separate line piggybacked into the mainline</li> </ul>
<b>Initial rate:</b>	> 12 mL / hour (2 mU / min)
<b>Increments:</b>	> Increase every 30 minutes by 12 mL / hour (2 mU / min)
<b>Maximum:</b>	> 192 mL / hour (32 mU / min)
<p><b>Prolonged oxytocin infusion</b></p> <ul style="list-style-type: none"> <li>&gt; if a second litre of oxytocin infusion is required, consider doubling the dose per litre and running the infusion at half the rate (e.g. increase oxytocin dose to 20 units per litre and infuse dose at half the previous rate)</li> </ul>	
<p><b>Maximum oxytocin infusion dosage</b></p> <ul style="list-style-type: none"> <li>&gt; The summary of product guidelines recommends a maximum dose of IV oxytocin 20 mU / minute</li> <li>&gt; In cases where labour progress is unresponsive, RCOG recommends higher doses, which should not exceed 32 mU / minute</li> </ul> <div style="text-align: right; margin-top: 20px;">  <p><b>Government of South Australia</b> SA Health</p> </div>	

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Table II: High concentration/low volume oxytocin IOL dosage regimen

High concentration / low volume oxytocin IOL dosage regimen	
<ul style="list-style-type: none"> <li>&gt; This is a modification of the above oxytocin induction of labour regimen, allowing the same dose of oxytocin to be administered in 1 / 10th the volume of 0.9 % sodium chloride</li> <li>&gt; Suitable for women with a cardiovascular disorder, who are sensitive to fluid overload</li> </ul>	
<b>Preparation</b>	<ul style="list-style-type: none"> <li>&gt; Add 10 I.U oxytocin to a 100 mL bag of</li> <li>&gt; 0.9 % sodium chloride</li> <li>&gt; Use an appropriate syringe pump</li> <li>&gt; Infuse as a separate line piggybacked into the mainline at the IV insertion point</li> </ul>
<b>Initial rate:</b>	> Commence oxytocin at 0.6 - 1.2 mL / hour (1-2 mU / min)
<b>Increments</b>	> Increase every 30 minutes by 1.2 mL / hour (2 mU / min)
<b>Maximum</b>	> 19.2 mL / hour (32 mU / min)
<p><b>Maximum oxytocin infusion dosage</b></p> <ul style="list-style-type: none"> <li>&gt; The summary of product guidelines recommends a maximum dose of IV oxytocin &gt; 20 mU / minute</li> <li>&gt; In cases where labour progress is unresponsive, RCOG recommends higher doses, which should not exceed 32 mU / minute</li> </ul> <div style="text-align: right; margin-top: 20px;">  <p><b>Government of South Australia</b> SA Health</p> </div>	

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## Summary of Practice Recommendations

Delay commencement of oxytocin infusion by 6 hours following administration of vaginal prostaglandins

Amniotomy should be performed prior to commencement of oxytocin infusion

Aim for a maximum of 3 – 4 contractions in ten minutes

Continuous CTG is required with oxytocin infusion

Observe for uterine hypercontractility and/or signs of fetal compromise

Observe for signs of water intoxication

## Abbreviations

TG	Cardiotocograph
e.g.	For example
Et al.	And others
IOL	Induction of labour
IU	International units
IV	Intravenous
mg	Milligram(s)
mL	Millilitre(s)
mU	Milliunit(s)
%	Percent
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
RCOG	Royal College of Obstetricians and Gynaecologists
®	Registered trademark



# Oxytocin augmentation and induction of labour infusion

## Introduction

> Oxytocin is a hormone released from the posterior pituitary. As it stimulates rhythmic contractions of uterine smooth muscle, it can be used to induce or augment labour<sup>1</sup> and to prevent or treat postpartum haemorrhage

## Oxytocin

- > Oxytocin (Syntocinon®) is a synthetic nonapeptide identical with oxytocin.
- > In the doses used it has only a very slight pressor and anti-diuretic activity<sup>1</sup>
- > Intrapartum oxytocin infusion regimens may be administered in the following:
  - > Induction of labour
  - > Augmentation of labour
- > There is no hard evidence to recommend a particular dosage of oxytocin for induction or augmentation of labour infusion regimens. Oxytocin infusion regimens in this guideline are based on medical expert consensus

## Contraindications

- > Hypersensitivity to oxytocin (Syntocinon®)

## Precautions

- > In women who have **diabetes mellitus** or **abnormal glucose tolerance in pregnancy**, oxytocin should be administered with 0.9 % sodium chloride to prevent hyponatraemia
- > In women with **cardiovascular disorders** the infusion volume should be kept low by using a more concentrated oxytocin solution (for more information on prophylaxis management of the third stage of labour in volume critical patients, see PPG, Cardiac disease in pregnancy, Postpartum)
- > **Avoid** large volumes of oral and IV fluids with oxytocin administration

### **Water intoxication (Hyponatraemia)**

> High doses of oxytocin or prolonged periods of infusion of oxytocin in electrolyte-free fluids may interfere with vasopressin receptors. This can result in **water intoxication**

### **Symptoms and signs of water intoxication:**

> Headache, nausea, vomiting and abdominal pain, lethargy, drowsiness, unconsciousness, grand mal type seizures, low blood electrolyte concentration

### **Treatment**

- > Discontinue oxytocin infusion
- > Restrict fluid intake
- > Promote diuresis
- > Correct electrolyte imbalance
- > Control convulsions
- > If coma is present: maintain a free airway, and carry out the routine measures for care of an unconscious patient



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## Induction of labour (IOL) regimen (oxytocin)

- > RCOG (2001) recommends the following oxytocin regimen guidelines:<sup>2</sup>
  - > Allow a delay of six hours after administration of the last dose of vaginal prostaglandins before commencing oxytocin
  - > In women with intact membranes, amniotomy should be performed where feasible before starting a oxytocin infusion
  - > Use the minimum dose possible and aim for a maximum of 3 – 4 contractions in ten minutes
  - > Prescribe and record the dose of oxytocin being delivered (i.e. mU / minute)
  - > Continuous CTG whenever oxytocin is used for induction or augmentation
  - > Follow link to Induction of labour techniques for further information
  - > The oxytocin high dose regimen for IUFD is covered in chapter 102b
  - > The following regimen is consistent with RCOG and oxytocin (Syntocinon®) product guidelines. However, individual organisations may differ in their management
    - > Refer to Table I and II.

## Observations

### Induction of labour

- > Routine labour observations (partograph)

### Uterine hypercontractility without signs of fetal compromise:

- > Reduce oxytocin infusion rate and seek review

### Uterine hypercontractility with associated signs of fetal compromise:

- > Prolonged use of maternal facial oxygen therapy may be harmful to the baby and should be avoided. There is no research evidence evaluating the benefits or risks associated with the short-term use of maternal facial oxygen therapy in cases of suspected fetal compromise<sup>3</sup>
- > Decrease or discontinue oxytocin
- > Position woman on her left side
- > Increase intravenous fluids
- > Review by medical officer
- > Oxygen at 8 litres for duration of fetal compromise
- > Palpate the uterus to determine uterine response to management
- > Consider need for uterine tocolytic e.g. salbutamol (see Tocolysis for Uterine Hypercontractility PPG available at [www.sahealth.sa.gov.au/perintal](http://www.sahealth.sa.gov.au/perintal))



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## References

1. MIMS Syntocinon<sup>®</sup>. Full prescribing information. May 2017.
2. Royal College of Obstetricians and Gynaecologists (RCOG). Induction of labour, Evidence-based Clinical Guideline Number 70. RCOG Clinical Effectiveness Support Unit, London: RCOG Press; 2008.
3. National Institute of Clinical Excellence (NICE). Intrapartum care: care of healthy women and their babies during childbirth. NICE Clinical guideline 190, London: RCOG Press; 2014. Available from URL: <https://www.nice.org.uk/guidance/cg190>

## Useful resources

1. Grotegut CA, Paglia MJ, Johnson LNC, Thames B, James AH. Oxytocin exposure during labor among women with postpartum hemorrhage secondary to uterine atony. *Am J Obstet Gynecol* 2011; 204: 56. e1-6.

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