

Policy

# Clinical Guideline

## Oxytocin: Prophylaxis for Third Stage Management and Postpartum Haemorrhage

**Policy developed by:** SA Maternal & Neonatal Community of Practice  
**Approved SA Health Safety & Quality Strategic Governance Committee on:**  
19 April 2016  
**Next review due:** 19 April 2019

**Summary** Clinical practice guideline on the use of oxytocin for prophylaxis of third stage management and for postpartum haemorrhage

**Keywords** oxytocin prophylaxis for third stage management and postpartum haemorrhage, oxytocin, syntocinon, nonapeptide, uterotonic, hyponatraemia, water intoxication, intramuscular, uterine atony, oxytocin infusion, carbetocin, duratocin, clinical guideline

**Policy history** Is this a new policy? **N**  
Does this policy amend or update an existing policy? **Y 4.0**  
Does this policy replace an existing policy? **N**  
If so, which policies?

**Applies to** All SA Health Portfolio

**Staff impact** All Staff, Management, Admin, Students, Volunteers  
All Clinical, Medical, Nursing, Allied Health, Emergency, Dental, Mental Health, Pathology

**PDS reference** CG240

---

### Version control and change history

Version	Date from	Date to	Amendment
1.0	29 Jun 2004	21 Apr 2009	Original version
2.0	21 Apr 2009	17 Jul 2012	Reviewed
3.0	17 Jul 2012	14 Jan 2013	Reviewed
4.0	14 Jan 2013	19 April 2016	Reviewed
5.0	19 April 2016	Current	

© Department for Health and Ageing, Government of South Australia. All rights reserved.

## 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.

SA Health does not accept responsibility for the quality or accuracy of material on websites linked from this site and does not sponsor, approve or endorse materials on such links.

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.***



# Oxytocin: prophylaxis for the third stage of labour and PPH management

## 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 and to prevent or treat postpartum haemorrhage<sup>1</sup>

## Oxytocin

- > Oxytocin (Syntocinon<sup>®</sup>) 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>
- > The preferred uterotonic for prophylaxis for active management of the third stage is oxytocin because of its rapid onset of action and minimal side effects
  - > Intravenous onset of action < 1 minute and lasts < 30 minutes
  - > Intramuscular onset of action within 2 to 4 minutes and lasts 30 to 60 minutes (preferred route)
  - > **Side effects:** IV bolus may cause transient hypotension; prolonged high dose infusion increases risk of water intoxication
- > Oxytocin is also given as a single repeat intramuscular or intravenous dose for first line management of postpartum haemorrhage
- > Alternatively, Syntometrine<sup>®</sup> (oxytocin and ergometrine) may be given for prophylaxis of the third stage of labour or first line management of postpartum haemorrhage (see in 'ergot derivatives: prophylaxis for third stage management and pph' in the A to Z index at [www.sahealth.sa.gov.au/perinatal](http://www.sahealth.sa.gov.au/perinatal))
- > Postpartum, oxytocin infusion regimens may be administered in the following:
  - > Prophylaxis of postpartum haemorrhage
  - > Postpartum haemorrhage due to atony after delivery of the placenta
- > There is no hard evidence to recommend a particular dosage of oxytocin for either prophylaxis in the third stage of labour or postpartum haemorrhage infusion regimens. Oxytocin bolus doses and infusion regimens in this guideline are based on medical expert consensus
- > Prolonged use of oxytocin induces oxytocin receptor desensitisation and larger doses of oxytocin may be required to prevent or treat uterine atony and PPH<sup>3,4</sup>

## Contraindications

- > Hypersensitivity to oxytocin (Syntocinon<sup>®</sup>)

## 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 'Cardiac disease in pregnancy' in the A to Z index at [www.sahealth.sa.gov.au/perinatal](http://www.sahealth.sa.gov.au/perinatal) in the postpartum section)
- > **Avoid** large volumes of oral and IV fluids with oxytocin administration and maintain accurate fluid balance chart

### Water intoxication (Hyponatraemia)

ISBN number:  
Endorsed by:  
Last Revised:

978-1-74243-302-8  
South Australian Maternal & Neonatal Community of Practice  
19/4/2016

# Oxytocin: prophylaxis for the third stage of labour and PPH management

<p>&gt; High doses of oxytocin or prolonged periods of infusion of oxytocin in electrolyte-free fluids may interfere with vasopressin receptors. This can result in <b>water intoxication</b></p>
<p><b>Symptoms and signs of water intoxication:</b></p> <p>&gt; Headache, nausea, vomiting and abdominal pain, lethargy, drowsiness, unconsciousness, grand mal type seizures, low blood electrolyte concentration</p>
<p><b>Treatment</b></p> <p>&gt; Discontinue oxytocin infusion</p> <p>&gt; Restrict fluid intake</p> <p>&gt; Promote diuresis</p> <p>&gt; Correct electrolyte imbalance</p> <p>&gt; Control convulsions</p> <p>&gt; If coma is present: maintain a free airway, and carry out the routine measures for care of an unconscious patient</p>

<p><b>Prophylaxis for the third stage of labour (oxytocin)</b></p>	
<p><b>Vaginal birth</b></p>	<p>&gt; Give oxytocin 10 units intramuscular (preferred route)</p> <p>&gt; OR 5-10 units slowly intravenous</p>
<p><b>Elective Caesarean section</b></p>	<p>&gt; Give oxytocin 1-3 units slowly intravenous (over 30 seconds)</p> <p>&gt; If uterine atony develops, repeat the dose of 1-3 units</p> <p>AND</p> <p>&gt; Commence a prophylactic 40 units oxytocin infusion (see below)</p>
<p><b>Caesarean section and known risk factors for PPH</b></p> <p>(see risk factors in 'Postpartum haemorrhage' guideline in the A to Z index at <a href="http://www.sahealth.sa.gov.au/perinatal">www.sahealth.sa.gov.au/perinatal</a>)</p>	<p>&gt; Give oxytocin 3-5 units slowly intravenous</p> <p>&gt; Consider a prophylactic 40 units oxytocin infusion (see below)</p>
<p>Last reviewed: 08/12/15</p>	 <p>Government of South Australia</p> <p>SA Health</p>

## Postpartum haemorrhage (PPH)

ISBN number: 978-1-74243-302-8  
 Endorsed by: South Australian Maternal & Neonatal Community of Practice  
 Last Revised: 19/4/2016

# Oxytocin: prophylaxis for the third stage of labour and PPH management

> Due to the structural similarity with antidiuretic hormone, oxytocin can cause fluid retention and hyponatraemia. Careful fluid management is particularly important in women with pre-eclampsia, cardiac conditions or following a postpartum haemorrhage to minimise the risk of fluid overload and subsequent pulmonary oedema

**NOTE:** The 40 units oxytocin infusion regimen has been based on medical expert consensus

Postpartum haemorrhage (PPH) infusion regimen		
<b>Standard 40 units PPH regimen</b>	<b>Preparation</b>	<ul style="list-style-type: none"> <li>&gt; Check that prophylactic uterotonic (oxytocin or Syntometrine®) has been given for third stage management</li> <li>&gt; Add 40 units of oxytocin to 500 mL of Hartmann's' 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>Infusion rate</b>	> Run at 125 mL / hour (over 4 hours)
<b>Low volume 40 units PPH regimen</b> <b>(suitable for women at risk of fluid overload)</b>	<b>Preparation</b>	<ul style="list-style-type: none"> <li>&gt; Check that prophylactic uterotonic (oxytocin) has been given for third stage management</li> <li>&gt; Add 40 units of oxytocin to 100 mL of 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> <li>&gt; The mainline should be turned off to minimise risk of fluid overload (unless additional resuscitation required)</li> </ul>
	<b>Infusion rate</b>	> Run at 25 mL / hour (over 4 hours)
Last reviewed: 08/12/15		 <b>Government of South Australia</b> <hr style="width: 50%; margin: 0 auto;"/> SA Health

## Observations

### Prophylaxis (third stage management)

> Routine postpartum care

### Postpartum haemorrhage

> The first sign of diminishing blood volume and mild shock is tachycardia, which often precedes a fall in blood pressure

> Ensure an indwelling urinary catheter is in place for the duration of the oxytocin infusion regimen

**ISBN number:**

978-1-74243-302-8

**Endorsed by:**

South Australian Maternal & Neonatal Community of Practice

**Last Revised:**

19/4/2016

# Oxytocin: prophylaxis for the third stage of labour and PPH management

- > Regularly observe for response to the oxytocin infusion
- > Once response is achieved:
  - > Observe for vaginal blood loss, fundal tone, blood pressure and pulse half hourly for four hours or as clinically indicated

## Carbetocin (Duratocin®)

- > Carbetocin (Duratocin®) is a synthetic analogue of oxytocin, with a rapid onset of action (less than 2 minutes) and a longer half-life (41 minutes after IV injection) than oxytocin (1-5 minutes after IV injection)
- > Carbetocin (Duratocin®) stimulates a prolonged uterotonic effect lasting about an hour<sup>11,12</sup>
- > For women who undergo caesarean section, carbetocin (Duratocin®) reduces the need for additional uterotonic agents, and uterine massage when compared with oxytocin<sup>13</sup>
- > Carbetocin (Duratocin®) is associated with less blood loss compared to Syntometrine® in the prevention of postpartum haemorrhage in women who have vaginal deliveries with significantly fewer side effects. Further research is needed to assess the cost-effectiveness of carbetocin as a uterotonic agent<sup>13</sup>

## Indication

- > Prevent uterine atony and postpartum haemorrhage at elective caesarean section<sup>14</sup>

## Side effects

- > Side effects are very similar to those of oxytocin, including: abdominal pain, nausea, flushing and headache. Nearly half the patients may complain of itching

## Dosage

- > Give a single IV dose of carbetocin (Duratocin®) 100 micrograms (1 mL) slowly over one minute<sup>14</sup>

# Oxytocin: prophylaxis for the third stage of labour and PPH management

## References

1. MIMS Syntocinon<sup>®</sup>. Full prescribing information. July 2009.
2. McDonald SJ, Abbott JM, Higgins SP. Prophylactic ergometrine-oxytocin versus oxytocin for the third stage of labour. *Cochrane Database of Systematic Reviews* 2004, Issue 1. Art. No.: CD000201. DOI: 10.1002/14651858.CD000201.pub2. (Level I). Available from URL: <http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD000201/pdf/fs.html>
3. Dyer RA, Butwick AJ, Carvalho B. Oxytocin for labour and caesarean delivery: implications for the anaesthesiologist. *Current Opinion in Anesthesiology* 2011; 24: 255-61.
4. 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.
5. Novartis Pharmaceuticals Australia. Syntocinon<sup>®</sup> (synthetic oxytocin). Product information Australia 1994.
6. Svanstrom MC, Biber B, Hanes M, Johansson G, Naslund U, Balfors EM. Signs of myocardial ischaemia after injection of oxytocin: a randomized double-blind comparison of oxytocin and methylergometrine during Caesarean section. *BJOA* 2008; 100: 683-9 (Level I).
7. Royal College of Obstetricians and Gynaecologists (RCOG). Induction of labour, Evidence-based Clinical Guideline Number 9. RCOG Clinical Effectiveness Support Unit, London: RCOG Press; 2001.
8. National Institute of Clinical Excellence (NICE). Intrapartum care for healthy women and babies. NICE Clinical guideline 190, London: RCOG Press; 2014. Available from URL: <http://www.nice.org.uk/guidance/cg190>
9. Fawole B, Hofmeyr GJ. Maternal oxygen administration for fetal distress. *Cochrane Database of Systematic Reviews* 2003, Issue 4. Art. No.: CD000136. DOI: 10.1002/14651858.CD000136. Available from URL: <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD000136/pdf/standard>
10. Boucher M, Nimrod CA, Tawagi GF, Meeker TA, Rennicks RE, Varin J. Comparison of carbetocin and oxytocin for the prevention of postpartum hemorrhage following vaginal delivery: A double-blind randomized trial. *J Obstet Gynaecol Can* 2004; 26: 481-8.
11. Dansereau J, Joshi AK, Helewa ME, Doran TA, Lange IR, Luther ER, et al. Double-blind comparison of carbetocin versus oxytocin in prevention of uterine atony after cesarean section. *Am J Obstet Gynecol* 1999;180:670-6.
12. Borruto F, Treisser A, Comparetto C. Utilization of carbetocin for prevention of postpartum hemorrhage after caesarean section: a randomized clinical trial. *Arch Gynecol Obstet* 2009; 280: 707-12.
13. Su LL, Chong YS, Samuel M. Carbetocin for preventing postpartum haemorrhage. *Cochrane Database of Systematic Reviews* 2012, Issue 4. Art. No.: CD005457. DOI: 10.1002/14651858.CD005457.pub4. Available from URL: <http://onlinelibrary.wiley.com/doi/10.1002/14651858.CD005457.pub4/pdf/standard>
14. MIMS Duratocin<sup>®</sup>. Full prescribing information. March 2008.

# Oxytocin: prophylaxis for the third stage of labour and PPH management

## Abbreviations

CTG	Cardiotocograph
e.g.	For example
et al.	And others
IOL	Induction of labour
IV	Intravenous
mg	Milligram(s)
mL	Millilitre(s)
mU	Millunit(s)
%	Percent
RCOG	Royal College of Obstetricians and Gynaecologists
®	Registered trademark

## Version control and change history

**PDS reference:** OCE use only

Version	Date from	Date to	Amendment
1.0	29 Jun 2004	21 Apr 2009	Original version
2.0	21 Apr 2009	17 Jul 2012	Reviewed
3.0	17 Jul 2012	14 Jan 2013	Reviewed
4.0	14 Jan 2013	08 Dec 2015	Reviewed
5.0	08 Dec 2015	Current	

**ISBN number:**  
**Endorsed by:**  
**Last Revised:**

978-1-74243-302-8  
South Australian Maternal & Neonatal Community of Practice  
19/4/2016