

Maternity - Oxytocin for the Induction of Labour at or Beyond Term

Summary Local Health Districts are required to have procedures for the induction of labour.

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Author branch Agency for Clinical Innovation

Branch contact (02) 9464 4711

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Distributed to Public Health System, Divisions of General Practice, NSW Ambulance Service, Ministry of Health

Audience All maternity clinicians;obstetricians;GPs;midwives;WMOs

MATERNITY - OXYTOCIN FOR THE INDUCTION OF LABOUR AT OR BEYOND TERM

PURPOSE

This Policy Directive was developed to ensure safe and uniform clinical practice in relation to the use of oxytocin (Syntocinon®) for the induction of labour at or beyond term in maternity hospitals throughout NSW. It applies to induction of labour at or beyond term with a live baby. It is acknowledged that fetal death in utero at any stage of pregnancy may require induction of labour with similar or alternative agents acting upon the uterus not mentioned in the policy directive.

This policy directive provides direction to NSW maternity services regarding safe and uniform practice in relation to the induction of labour. It follows an audit of NSW maternity services undertaken in 2008 that demonstrated a wide variation in clinical practice. This policy directive should help inform maternity services in the development and implementation of local clinical practice guidelines and protocols.

MANDATORY REQUIREMENTS

All NSW Public Health Organisations providing maternity services must have clinical practice guidelines and protocols for the use of oxytocin for the induction of labour at or beyond term. Such clinical practice guidelines and protocols must reflect a Local Health District wide, standardised, evidence based policy for the induction of labour. The Local Health District policy must have statements that reflect the appropriateness of the procedure for the role level of maternity services.

All appropriately role delineated NSW public hospitals providing maternity services must have clinical practice guidelines for the induction of labour at term. Such guidelines must include a clear local plan of action for all clinicians to follow with appropriate early involvement of senior consultants in obstetrics in the event of uterine hyperstimulation (tachysystole), unsuccessful induction of labour, cord prolapse, uterine rupture and maternal collapse.

Health services and hospitals should comply with the educational program components as outlined in IB2008_002 *Fetal Welfare, Obstetric Emergency, Neonatal Resuscitation Training* (FONT). In particular, fetal welfare and maternity emergencies education days must include cord prolapse and maternal collapse/resuscitation in the program content. All clinicians working in maternity units are expected to complete the various components of the FONT program.

This policy directive must be read in conjunction with:

PD2009_003 Maternity - Clinical Risk Management Program

PD2010_040 Maternity - Fetal Heart rate Monitoring

PD2010_045 Maternity - Towards normal Birth in NSW

IMPLEMENTATION

The Chief Executives of Local Health Districts are ultimately responsible for the implementation of this policy directive within their respective facilities.

REVISION HISTORY

Version	Approved by	Amendment notes
November 2011 (PD2011_075)	Deputy Director-General Population and Public Health	New policy

ATTACHMENTS

1. Maternity - Oxytocin for the induction of Labour at or Beyond Term: Procedure.

Maternity - Oxytocin for the Induction of Labour at or Beyond Term



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1 BACKGROUND

1.1 About this document

This Policy Directive was developed to ensure safe and uniform clinical practice in relation to the use of oxytocin (Syntocinon®) for the induction of labour at or beyond term in maternity hospitals throughout NSW. It applies to induction of labour at or beyond term with a live baby. It is acknowledged that fetal death in utero at any stage of pregnancy may require induction of labour with similar or alternative agents acting upon the uterus not mentioned in the policy directive.

The development of this policy has been undertaken following:

- Literature review on induction of labour
- An audit of clinical practice for induction of labour undertaken in NSW maternity services in role delineated levels 3, 4, 5 and 6.

An audit of maternity services undertaken in 2008 identified variance in practice in relation to induction of labour and the use of oxytocin for induction and augmentation of labour.

A review of the literature found a range of research papers, systematic reviews and evidence-based clinical practice guidelines describing international best practice for induction of labour. Relevant references are provided at the end of this Policy Directive.

This Policy Directive has been endorsed by the Maternal and Perinatal Committee and the Maternal and Perinatal Health Priority Taskforce.

1.2 Key Definitions

In this document the term:

must – indicates a mandatory action required by a NSW Health policy directive, law or industrial instrument; and

should – indicates an action that should be followed unless there are justifiable reasons for taking a different course of action.

1.3 Local Health District Requirements

Local Health Districts (LHD) must have a LHD wide, standardised, evidence based policy for Induction of Labour. The LHD policy must have statements that reflect the appropriateness of the procedure for the role level of the maternity service.

1.4 Woman Centred Care

Induced labour has an impact on the birth experience for women. Labour is often more painful than spontaneous labour, and epidural analgesia and assisted delivery are more likely to be required.

Treatment and care should take into account a woman's individual needs and preferences. Women who are having, or being offered, induction of labour must have the opportunity to receive accurate information and make informed decisions about their care and treatment, in partnership with their health care professionals.

Effective communication between health care professionals and women is essential. Communication should be supported by evidence-based written information, where possible, tailored to the needs of the individual woman. Treatment and care, and the information provided should be culturally appropriate. It should also be accessible to women, their partners and families, taking into account any additional needs such as physical or cognitive disabilities, and inability to speak or read English.

1.5 Information and decision making

Only GP Obstetricians and Specialist Obstetricians who have been credentialed and have these procedures in their scope of practice may supervise induction or augmentation of labour including the use of oxytocin. It is recommended that scheduling of inductions should be by arrangement with the Birthing Unit Manager, in order to take into account the availability of staff, equipment, support services and expertise.

Women should be informed that most women will go into labour spontaneously by 42 weeks gestation. The median and mode for uncomplicated singleton pregnancy are 40 weeks two days and 40 weeks three days, respectively, not '40 weeks', and two standard deviations beyond that is approximately 13 days. Approximately one-quarter of pregnant women may not have laboured by 41 weeks¹.

At term, women must be offered information about the risks associated with prolonged pregnancies, and the options available to them.²

The information must cover:

- The risks and benefits of membrane sweeping during a vaginal examination:
 - what a membrane sweep is;
 - that membrane sweeping makes spontaneous labour more likely, and so reduces the need for induction of labour to prevent prolonged pregnancy;
 - that discomfort and slight vaginal bleeding are possible from the procedure;
- The risks and benefits of induction of labour from 41³ weeks gestation; and
- The risks and benefits of expectant management (waiting for labour to start).

Induction of labour must not routinely be offered on maternal request alone.

Health care professionals must explain the following points to women being offered induction of labour:²

- the reasons for induction being offered;
- when, where and how induction could be carried out;
- the arrangements for support and management of pain in labour (recognising that women are likely to find induced labour more painful than spontaneous labour) ;
- the alternative options if the woman chooses not to have induction of labour;
- the risks and benefits of induction of labour in specific circumstances and the proposed induction methods; and
- that induction may not be successful and what the woman's options would be in this situation.

Health care professionals offering induction of labour must:

- provide the woman with adequate time to discuss the information with her partner/support person before coming to a decision;
- encourage the woman to access a variety of sources of information;
- invite the woman to ask questions, and encourage her to think about her options; and
- support the woman in whatever decision she makes.

1.6 Special Considerations

Induction of labour carries inherent risk and must be exercised with caution. There needs to be clear benefits for the mother and/or the fetus.

Induction of labour may lead to further interventions hence consideration of the context must be undertaken in line with the designated role delineated level of the maternity service. Such interventions may include the necessity to perform an emergency caesarean section.

Local Health Districts are required to provide guidance for clinicians in circumstances where clinical decision making is particularly difficult such as breech presentation, pre-labour rupture of membranes at term, multiple pregnancy, and previous caesarean section.

Women with a history of previous caesarean section must be informed of the following risks with induction of labour:

- an increased risk of need for emergency caesarean section during induced labour; and
- an increased risk of uterine rupture.

In the case of women with a history of previous caesarean section, Local Health Districts must ensure that medical induction of labour or augmentation with oxytocin (Syntocinon®) does not occur at role delineated level 3, 2 or 1 maternity services.

2 PRIOR TO INDUCTION OF LABOUR WITH OXYTOCIN

2.1 Membrane Sweeping

Membrane sweeping involves the examining finger passing through the cervix to rotate against the wall of the uterus, to separate the chorionic membrane from the decidua. If the cervix will not admit a finger, massaging around the cervix in the vaginal fornices may achieve a similar effect.

For the purpose of this policy directive, membrane sweeping is regarded as an adjunct to induction of labour rather than an actual method of induction.

2.2 Modified Bishop's Score

Before induction of labour is carried out, a modified Bishop's score^{3,4,5} must be assessed and recorded to assist with decision making about the best approach. The recommended modified Bishop's score assessment tool is found in Appendix A.

2.3 Prostaglandins for Cervical Ripening

Prostaglandins like dinoprostone (Prostin®) gel or Cervidil® pessary) are widely used throughout many countries for both cervical ripening and induction of labour. In Australia, prostaglandins are promoted for cervical ripening with intact membranes and a modified Bishop Score <5. Health care professionals must comply with the requirements of *PD2005_406 Consent to Medical treatment – Patient Information*.

Before induction of labour is carried out, modified Bishop's score must be assessed and recorded, and a normal fetal heart rate pattern must be confirmed using electronic fetal monitoring. After administration of vaginal PGE₂, when contractions begin, fetal wellbeing should be assessed with continuous electronic fetal monitoring. Once the CTG is confirmed as normal, intermittent auscultation should be used unless there are clear indications for continuous electronic fetal monitoring as described in *PD2010_040 Maternity - Fetal Heart Rate Monitoring*. If the fetal heart rate is abnormal after administration of vaginal PGE₂, management of fetal compromise should be attended as per the recommendations in *PD2010_040 Maternity - Fetal Heart Rate Monitoring*.

For Prostin® gel:

- 1 or 2mg for the initial dose. If Prostin® gel is used and a second dose is required, it must not be given within 6 hours of the first dose.
- For Prostin® gel, the maximum dose, regardless of parity, is 3mg for all women in a 12 hour period.
- There is no evidence that further doses of Prostin® gel have any benefit.
- Oxytocin (Syntocinon®), if used, must not be started for six hours following the administration of the last insertion of Prostin® gel.
- Amniotomy may be attended four hours following the administration of the last insertion of Prostin® gel.

For Cervidil®:

- 1 x 10mg pessary is inserted and removed at or before 12 hours has passed depending on uterine activity. At 12 hours after insertion, approximately 4mg of dinoprostone has been absorbed.
- Oxytocin (Syntocinon®) must not be commenced less than 30 minutes after removal of the pessary.

The optimal timing of the doses of prostaglandins needs to be determined locally.

It is recognised that there is ongoing research into other regimes for both Prostin® gel and Cervidil® and that maternity services may be participating in clinical trials that cause variation from this policy directive.

The use of misoprostol for cervical ripening as outlined in this PD is not supported.

NB: Cervical ripening is not an approved indication for the use of misoprostol. Prior to using any drug for an unapproved (off-label) indication, approval should be sought from the local hospital or LHD Drug Committee, and informed patient consent obtained.

2.4 Mechanical Methods for Cervical Ripening

Mechanical methods used for induction of labour include various types of balloon catheters introduced via the cervical canal into the extra-amniotic space. There is emerging evidence favouring the use of balloon catheters for cervical ripening in women with an unfavourable cervix. Mechanical methods of cervical ripening must be supported by local evidence-based guidelines to support staff in their proper use.

3 INDUCTION OF LABOUR

3.1 Surgical Methods of Induction of Labour

Amniotomy is often used in conjunction with methods of cervical ripening and/or oxytocin (Syntocinon®) to effect the initiation of labour. Amniotomy alone may be appropriate in some circumstances. In the absence of contractions, and with a high presenting part, amniotomy carries inherent risk such as compound presentation and /or cord prolapse. Appropriate risk management procedures must be in place to deal with such clinical scenarios.

3.2 Medical Methods of Induction of Labour - Oxytocin

In women with intact membranes, amniotomy should be performed where feasible prior to commencement of an infusion of oxytocin.^{2,3} Even in the situation where induction of labour is being undertaken for prelabour rupture of membranes a vaginal examination should be performed to ensure that any forewaters are ruptured. With intact membranes intravenous oxytocin alone should not be used for induction of labour.

It must be noted that water intoxication is a rare but recognised complication of synthetic oxytocin (Syntocinon®) infusion. Care must be exercised with the solution used, the concentration and the total volume infused.

A fluid balance chart must be accurately maintained for women receiving this infusion. Careful review of fluid status needs to be undertaken after 2 litres of solution have been administered.

3.2.1 Solution

A non-dextrose solution must be used as the vehicle for delivering oxytocin (Syntocinon®). The solutions of choice are normal saline or Hartmann's solution.

3.2.2 Administration

Oxytocin must be administered with an infusion pump to ensure accurate administration^{2,11}. It is not acceptable to use visual methods such as counting drops or utilising a burette to administer oxytocin (Syntocinon®).

3.2.3 Concentration

To reduce error, a standard concentration must always be used regardless of parity. The recommended concentration is:

- 10iu oxytocin (Syntocinon®) in 1000ml infusion fluid **OR**
- 5iu oxytocin (Syntocinon®) in 500ml infusion fluid

This equates to 10 milliunits per ml.

3.2.4 Starting dose

The same starting dose must be initiated regardless of parity i.e. 15ml per hour or 150 milliunits per hour.

3.2.4.1 *Increments*

The rate must not be increased less than 30 minutes following the commencement of the regimen.

The purpose of the administration of oxytocin (Syntocinon®) infusion is to achieve 4 to 5 contractions every 10 minutes. In normal circumstances, this would mean contractions that are 50-70 seconds in duration, and with a minimum resting tone of 90 seconds.

Incremental increases must occur as follows until this is achieved.

Table 1 - Incremental Regimen

Time	Milliunits per minute	Mls per hour
Start	2.5	15
Min 30 mins	5	30
½ hourly	10	60
	15	90
	20	120
	25	150
	30	180
Medical Review		
½ hourly	35	210
	40	240

It is reasonable to consider reduction or cessation of the infusion in circumstances where spontaneous uterine activity is apparent particularly in multiparous women.

If ceased for an insertion of an epidural, recommence at the rate being infused at cessation unless otherwise indicated by the uterine activity.

3.2.4.2 *Maximum dose*

The maximum dose **must not** exceed 40 milliunits per minute or 240 ml per hour.

Once the dose has reached 30 milliunits/minute (180ml/hour), a medical reassessment must be undertaken before any further increase is undertaken. The management plan must be clearly documented in the health record.

3.2.4.3 *Fetal Heart Rate Monitoring*

Medical induction of labour must only occur where there are facilities for continuous external uterine contraction and fetal heart rate monitoring.²

For women who are healthy and have had an otherwise uncomplicated pregnancy, fetal wellbeing should be established before and after the administration of prostaglandins. Once a reassuring fetal heart rate is shown, intermittent auscultation should be used.²

When oxytocin is being infused continuous electronic fetal monitoring should be used as per *PD2010_40 Maternity – Fetal Heart Rate Monitoring*.

Local Health Districts must establish district wide procedures to assess and document the following:

- Maternal Blood Pressure, pulse and temperature
- Maternal uterine contractions

Local Health Districts must establish district wide procedures in the event of the following:

- Tachysystole (uterine hyperstimulation)
- Unsuccessful Induction of Labour
- Cord prolapse
- Uterine rupture
- Maternal Collapse

4 OTHER CONSIDERATIONS

4.1 Mobility

Women should be offered the opportunity to ambulate throughout the induction of labour.

4.2 Managing pain

Women should be informed of the different ways to manage and cope with pain in labour in different settings

Women should be offered support and analgesia as required, and staff should encourage women to use their own coping strategies for pain relief. This includes the opportunity to labour in water.

4.3 Failed induction

If induction fails, clinicians must discuss this with the woman and provide support. The woman's condition and the pregnancy in general should be fully reassessed and fetal wellbeing should be assessed using electronic fetal monitoring.² If induction of labour fails, subsequent management options should be discussed with the woman. Such options may include a further attempt to induce labour, the timing of which will be dependent on the clinical situation and woman's wishes. Caesarean section operation may be appropriate in some circumstances.

4.4 Evaluation

In accordance with *PD2009_003 Maternity – Clinical Risk Management Program*, the local Maternity Clinical Risk Management Committees are charged with auditing the following on an annual basis:

- Gestational age less than 39 weeks for elective induction of labour
- Documentation of modified Bishop's Score
- Documentation of fetal welfare
- Recognition and management of uterine hyperstimulation (tachysystole).

5 REFERENCES

1. Swift, J. (2002). Routine induction of labour at 41 weeks gestation: nonsense consensus *British Journal Obstetrics and Gynaecology: an International Journal of Obstetrics and Gynaecology May 2002, Vol. 109*, pp.485-491
2. National Collaborating Centre for Women's and Children's Health. *Induction of Labour - Clinical Guideline*. July 2008. RCOG Press.
3. Government of South Australia, Department of Health. Perinatal Practice Guidelines. Available at URL: <http://www.health.sa.gov.au/ppg>
4. British Columbia Reproductive Program. Obstetric Guideline 1: Cervical Ripening and Induction of Labour. (2005)
5. Royal Women's Hospital, Melbourne. Guidelines for Induction of Labour, 2007. Available at URL: <http://www.thewomens.org.au/InductionofLabour>.
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6 APPENDIX A

Modified Bishop⁶ Cervical Score System

Characteristic	0	1	2	3	Score
Dilatation (cm)	< 1	1-2	2-4	> 4	
Length (cm)	> 4	2-4	1-2	< 1	
Consistency	firm	average	soft	-	
Position of cervix	posterior	middle / anterior	-	-	
Station	-3	-2	-1 to 0	+1 to +2	
					Total =

7 LIST OF ATTACHMENTS

1. Implementation Checklist

Attachment 1: Implementation checklist

Assessed by:		Date of Assessment:	
IMPLEMENTATION REQUIREMENTS	Not commenced	Partial compliance	Full compliance
1. A Local Health District standardised local practice procedure, based on this policy directive, must be implemented within 6 months of issue of this policy directive.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Notes:</u>		
2. All medical, midwifery, nursing and other staff must be educated about the content of this policy directive within 12 months of issue.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<u>Notes:</u>		