

South Australian Perinatal Practice Guideline

Nifedipine for preterm labour

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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 Perinatal Practice Guideline

The purpose of this guideline is to provide clinicians with information on the use of nifedipine for suppression of preterm labour in women who are less than 34 weeks gestation. It includes information on dose, frequency, contraindications and observations required.



Nifedipine for preterm labour

Flowchart I: Nifedipine for suppression of preterm labour

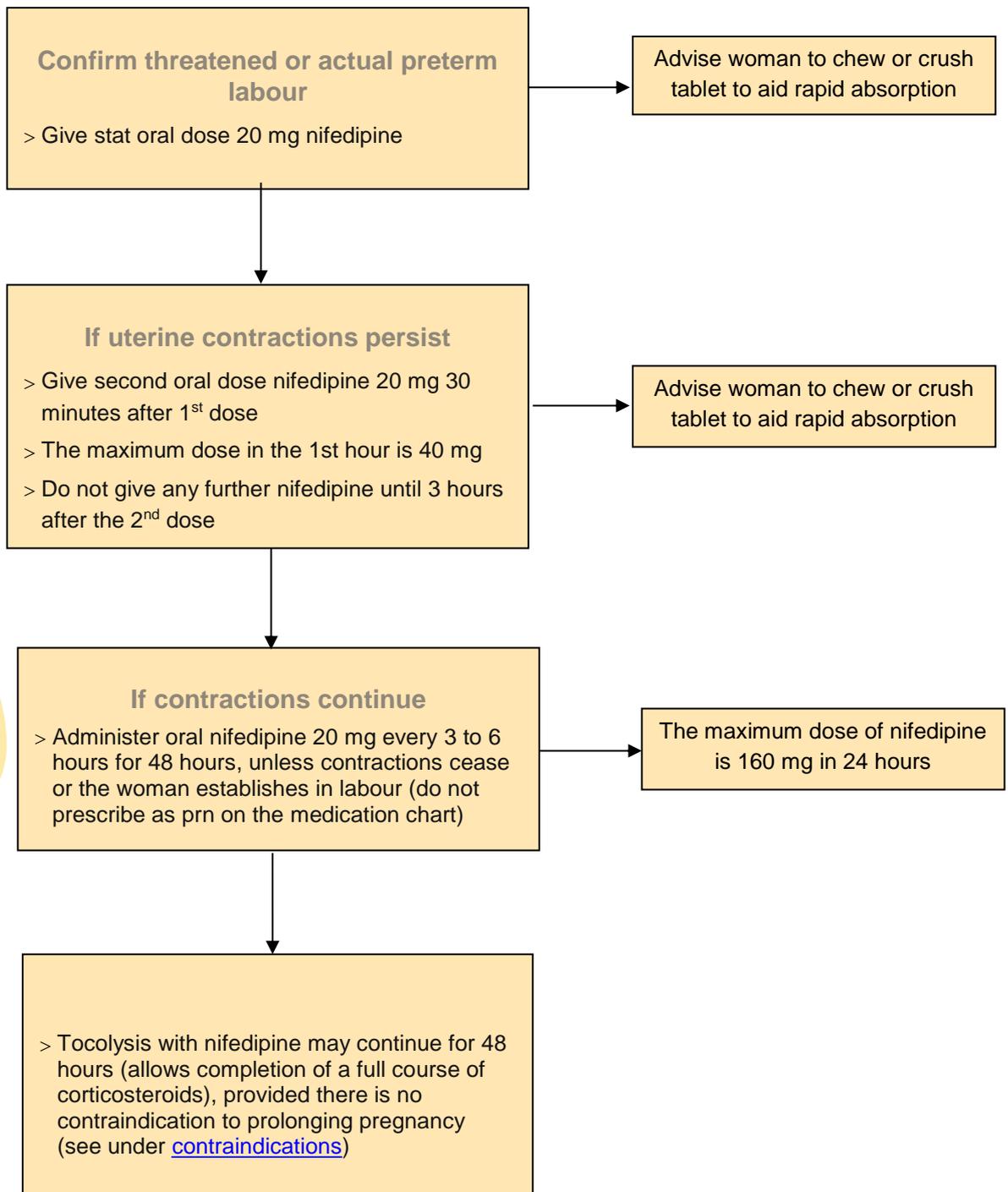


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Summary of Practice Recommendations

Nifedipine is the preferred tocolytic for suppression of preterm labour < 34 weeks.

Always check maternal blood pressure before administering nifedipine. Do not administer if systolic BP less than 90 mmHg.

Assess for contraindications prior to administration.

Abbreviations

BP	Blood pressure
CTG	Cardiotocograph
FHR	Fetal heart rate
e.g.	for example
GTN	Glyceryl trinitrate
g	Gram(s)
IUFD	Intrauterine fetal death
IV	Intravenous
MgSO ₄	Magnesium sulphate
mg	Milligram(s)
mm Hg	Millimetres of mercury
min	minute
PPROM	Preterm prelabour rupture of the membranes
TPR	Temperature, pulse, respirations
TGA	Therapeutic goods administration

Product information¹

- > Nifedipine, a dihydropyridine calcium channel blocker, is an effective smooth muscle relaxant with low toxicity. Although nifedipine is known as an antihypertensive drug, the drop in blood pressure in normotensive women after starting tocolytic therapy is significantly more with intravenous salbutamol as compared to nifedipine
 - > Adalat[®]: Absorption of nifedipine is delayed. Maximum plasma concentrations occur in 1.5 – 4.2 hours. The half-life is 6 – 12 hours¹
 - > Nifedipine is metabolised by the liver and the inactive metabolite is excreted mainly by the kidney¹
 - > In case of urgency – ask the woman to chew the tablet and swallow to aid faster absorption
 - > Nifedipine tablets may be crushed to aid administration; however this may alter the modified release characteristic of the tablet and therefore administration might be needed more often. Crushed tablets should also be administered within 30-60 seconds of crushing to avoid significant loss in potency of drug^{2,3}
 - > Research has shown nifedipine to be a more effective tocolytic agent than betamimetics in prolonging pregnancy for preterm labour^{4,5}
 - > Nifedipine is classified as a risk Category C drug by the Australian Drug Evaluation Committee
 - > Nifedipine carries the potential for fetal hypoxia associated with maternal hypotension
 - > The TGA approved Product information and Consumer Medicine Information says: "Nifedipine is contraindicated throughout pregnancy, and breastfeeding should be stopped first if nifedipine treatment becomes necessary during the breastfeeding period." and "Do not take if you are pregnant or breastfeeding", respectively
 - > This guideline should only be used in consultation with specialists who are familiar with the management of preterm labour and the care of preterm infants

Introduction

- > Nifedipine is the preferred tocolytic for suppression of preterm labour < 34 weeks
- > There is no clear evidence that tocolytic drugs improve outcomes following preterm labour⁶
- > Women most likely to benefit from tocolysis with nifedipine are those:
 - > In very preterm labour
 - > Needing transfer to a hospital with neonatal intensive care facilities
 - > AND who have not completed a full course of corticosteroids (takes 48 hours to achieve maximum effect of fetal lung maturity)^{6,7}
- > Discussion with the woman and her partner should include the above points⁶

Indications

Suppression of:

- > Threatened Preterm Labour < 34 weeks
- > Actual Preterm Labour < 34 weeks

Contraindications^{4,6}

Maternal

- > Hypotension (systolic BP less than 90 mmHg) carries the potential for fetal hypoxia
- > Advanced cervical dilatation (particularly if PPROM)
- > Allergy to nifedipine
- > Cardiac disease (congestive cardiac failure, aortic stenosis)
- > Hepatic dysfunction

Fetal

- > Proven intrauterine infection
- > Fetal compromise requiring delivery
- > Placental abruption
- > Severe growth restriction
- > Lethal fetal anomalies
- > Intrauterine fetal death (IUFD)

Relative contraindications^{5,6}

Maternal

- > Concurrent use of IV salbutamol, transdermal nitrates (GTN)
- > Nifedipine and magnesium sulphate (MgSO₄): Concomitant use of MgSO₄ with nifedipine may result in significant hypotension, and neuromuscular weakness if using the conventional 4 – 6 g IV bolus. An alternative is continuous infusion of MgSO₄ 1 g / hour⁵
- > PPROM after adequate steroid cover (48 hours)

Fetal

- > Suspected intrauterine infection
- > Fetal growth restriction
- > Multiple pregnancy
- > Preterm labour in the presence of placenta praevia
- > Undiagnosed significant vaginal bleeding

Dosage

Check blood pressure before administering nifedipine

Confirm threatened or actual preterm labour

- > Give stat dose nifedipine 20 mg. The tablet should be chewed or crushed to aid the speed of absorption

If uterine contractions persist

- > The second dose of nifedipine 20 mg is given 30 minutes after the first dose. The tablet should be chewed or crushed to maximise speedy absorption
- > The maximum dose of nifedipine in the first hour is 40 mg
- > **Do not give any further nifedipine until three hours after the second dose**



If contractions continue

- > Administer nifedipine 20 mg every three to six hours for 48 hours (unless contractions cease or the woman establishes in labour)
- > Prescribe as written above (do not prescribe as prn)
- > The maximum dose of nifedipine is 160 mg in 24 hours
- > Tocolysis with nifedipine may continue for 48 hours (for completion of a full course of corticosteroids), provided there is no contraindication to prolonging pregnancy

Stop the nifedipine if:

- > There is marked hypotension, e.g. systolic < 90 mm Hg
- > Significant dyspnoea

Observations

- > Maternal baseline BP, TPR, FHR before administering the first dose of nifedipine 20 mg
- > Continue hourly BP and maternal pulse for four hours
- > **Check BP before administering nifedipine**
- > Temperature every 4 hours
- > The rate of observations should be tapered according to the clinical situation
- > Continuous CTG while contracting
- > Recommence CTG in the presence of:
 - > Regular abdominal pains or tenderness
 - > Change in amount, colour of liquor
 - > Antepartum haemorrhage
- > And arrange medical review

Side effects

- > In normotensive women, the effects of nifedipine on BP are minimal
- > Headache
- > Tachycardia, palpitations
- > Flushing
- > Fatigue
- > Dizziness
- > Constipation
- > Nausea and heartburn
- > Peripheral oedema secondary to arteriolar vasodilatation
- > Transient rise in liver function test results
- > **NB: Care with concomitant use of antihypertensive medications (check blood pressure before administering nifedipine)**



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Acknowledgements

The South Australian Perinatal Practice Guidelines gratefully acknowledge the contribution of clinicians and other stakeholders who participated throughout the guideline development process particularly:

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Document Ownership & History

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Contact: HealthCYWHSPerinatalProtocol@sa.gov.au
Endorsed by: SA Health Safety and Quality Strategic Governance Committee
Next review due: 20 May 2019
ISBN number: 978-1-74243-298-4
PDS reference: CG140
Policy history: Is this a new policy (V1)? **N**
Does this policy amend or update an existing policy? **Y**
If so, which version? **V4**
Does this policy replace another policy with a different title? **N**
If so, which policy (title)?

Approval Date	Version	Who approved New/Revised Version	Reason for Change
5 July 2018	V4.1	SA Health Safety and Quality Strategic Governance Committee	Review date extended to 5 years following risk assessment. New template.
20 May 2014	V4	SA Health Safety and Quality Strategic Governance Committee	Reviewed in line with scheduled review date
18 Oct 2010	V3	Maternal and Neonatal Clinical Network	Reviewed
18 May 2010	V2	Maternal and Neonatal Clinical Network	Reviewed
16 Jun 2004	V1	Maternal and Neonatal Clinical Network	Original approved version.

