Opioids in labour

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1. Overview

Purpose: To support best practice for the prescription and administration of opioids **in labour**.

Scope: All employed and self-employed midwives

2. Background

Midwives have prescribed pethidine for labour pain for many years, however changes to the Medicines Amendment Act (2013) and Misuse of Drugs Regulation Amendments (2014) now allow midwives who have completed the required education to prescribe the following additional opioid medications:

1. Morphine
2. Fentanyl

⚠ Fentanyl may only be prescribed by a midwife in a secondary or tertiary hospital setting with medical backup available.

Fentanyl may not be prescribed for women in a primary birthing unit or a woman requiring transfer to another facility.

The Midwifery Council has determined that in relation to the prescription of opioid analgesia midwives may prescribe for **intrapartum use only** (MCNZ 2014). Women requiring opioid analgesia for other indications should be assessed and a referral made to the most appropriate health professional.

Opioids are sedatives which are considered to alter pain perception rather than true analgesia. Emerging research suggests morphine and fentanyl have fewer side effects than pethidine for the baby, and a shorter half-life. However all opioids need to be used judiciously as they can have side effects ranging from mild to severe.

Ideally women will have been offered other pain relief options appropriate to their personal requirements before being offered opioids for rapid onset pain relief.

3. Education

The Midwifery Council require all midwives who wish to prescribe morphine or fentanyl to complete the Midwifery Council e-Learning package click here to access

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Waitemata DHB requires all DHB employed midwives to complete the Waitemata Medications Test competency requirements and the Midwifery Council's e-learning package before prescribing morphine or fentanyl to women in labour.

4. Prescribing and Administering

1. Midwives must ensure that they have completed the required education and can safely prescribe and administer opioids to women **in labour**
2. Midwives must ensure they have a thorough understanding of the opioid including contraindications, appropriate dose for weight range, and route of administration, side effects, interactions and the woman's stage of labour.
3. Women who have a history of opioid use require an obstetric or anaesthetic consultation prior to prescribing and administering opioids
4. Midwives must follow Waitemata DHB practice for prescription and administration of controlled drugs and document the opioid prescription and administration on the DHB medication chart
5. Midwives must evaluate the woman's progress before administering pain relief to ensure it is a safe choice for the woman and her baby
6. Midwives must ensure that the woman is informed and consents to the treatment being proposed
7. Midwives may prescribe only **one** of the opioids; pethidine/morphine/fentanyl to an individual woman via **one** route
8. It would be usual practice to simultaneously administer a prophylactic anti-emetic medication
9. Once an IV opioid has been administered if nitrous oxide gas is required both mother and baby require close monitoring as the combination is thought to increase the risk of respiratory depression
10. Resuscitative equipment & oxygen must be available at all times and midwives must ensure they are familiar with the equipment. Midwives must also ensure that naloxone is available to treat respiratory depression following opioid exposure during labour and for neonatal respiratory depression immediately after birth
11. When using opioids incrementally please do not leave opioids unattended. Waste remaining portion when the opioids are no longer required or when the midwife is no longer looking after the woman concerned. (Pyxis Management 2012)
12. IM injections should be administered into a large muscle – the ventrogluteal or vastus lateralis
13. Opioids via PCA must be prescribed by an anaesthetist
14. Seek advice if adequate pain relief is not achieved or you have any concerns

⚠ **Note:** Naloxone is not effective for the reversal of the prolonged norpethidine effects in the neonate and nor is it a drug of resuscitation

5. Monitoring

Women in established labour require 1:1 midwifery care and routine observations which can be increased at any time there is a concern.

In the absence of any maternal problems, pregnancy related risk factors and or labour complications regular intermittent auscultation of the fetal heart may be appropriate to monitor the baby's wellbeing. However opioids may cause sedation and respiratory depression in both mother and baby. Time to peak effect is variable and an opioid can accumulate in the baby during a long labour even when the opioid is

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given in incremental doses. The effect could appear on a Cardiotocograph (CTG) as a temporary reduction in baseline variability.

If combining opioids with nitrous oxide gas then careful monitoring of the woman's sedation level, respiration rate, O_2 saturations, heart rate and blood pressure will be required along with monitoring the fetal heart rate (FHR).

Assess effectiveness using the 0-10 pain score, where the anchors are 0 = no pain and 10 is 'the worst pain you have ever experienced'. A value of 4 or greater usually indicates moderate to severe pain

Intrapartum assessment prior to administration

Midwives must ensure maternal and fetal wellbeing prior to administration of an intrapartum opioid, and assess:

- Baseline observations include: respiratory rate, O_2 saturation, blood pressure, pulse and level of consciousness.
- Progress in labour
- Fetal wellbeing: Intermittent auscultation (IA) may not be appropriate and Electronic Fetal Monitoring (EFM) may be required. Midwives must be familiar with the Waitemata DHB fetal assessment in labour guideline (2017)
- Timing & response to previous dose (if appropriate)

Intrapartum assessment after administration

If IV opioid is given then monitor respiratory rate, O_2 saturations, blood pressure and maternal heart rate every 5 minutes for first 20 minutes of each dose. If stable revert to 1 hourly or sooner if there are any concerns. The fetal heart must be monitored closely following opioid administration with a continuous CTG trace for 30 minutes or longer if there are concerns. Once you have ascertained that the CTG is normal, continue with normal ongoing labour observations.

If IM opioid is given then monitor respiratory rate, O_2 saturations, blood pressure and maternal heart rate hourly for 4 hours. The fetal heart must be monitored closely following opioid administration either by frequent intermittent auscultation if appropriate or a continuous CTG trace for 30 minutes or longer if there are any concerns. Once you have ascertained that the FHR is normal, continue with normal ongoing labour observations.

⚠ Women should not enter a pool for hydrotherapy within 4 hours of receiving an opioid or if they are still drowsy

Postpartum

Active and on-going assessment of both mother and baby for a minimum of one hour post birth must occur. During this time the mother and baby should not be left alone – even for a short time (MoH 2012). Babies who have been exposed to fentanyl in labor should remain in hospital for at least 12 hours following the last dose of fentanyl and have their oxygen saturation and respirations monitored prior to feeds or 4 hourly, whichever occurs first.

Alerts

- Rising pain score or pain relief not achieved
- Woman not easily rousable: sedation score is 3
- Respiratory rate is ≤ 10 rpm
- SpO_2 ≤ 94%
- Systolic BP < 100mmHg
- Pulse < 60bpm
- Woman complains of a "tight chest"
- Anything that causes concern for the midwife

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6. Dose

If considering IV opioids midwives should consider contacting the anaesthetic team as a PCA may be the preferred choice particularly for fentanyl.

A midwife can only prescribe one opioid from the list on page one for an individual woman and only by one route.

If a woman requires more than one intra-partum dose of any opioid either IV or IM the midwife will need to consult with an obstetric registrar or a consultant.

Opioid	Start dose	Onset	Peak effect	Average half life
Pethidine IV Dilute 50mg pethidine with 9ml sodium chloride = 5mg/ml	12.5-25mg doses every 10 mins until pain managed to a max of 50mg	5 mins	15-30 mins	Maternal 3-7 hrs Neonate 18-23 hrs **Norpethidine:** Maternal 21 hrs Neonate 63 hrs
Pethidine IM Administer 50-100mg undiluted	≤50kg woman=50mg >50kg woman=100mg	10-30 mins	30-60 mins	Maternal 3-7 hrs Neonate 18-23 hrs
Morphine IV Dilute 10mg morphine with 9ml sodium chloride = 1mg/ml	1mg (slow push) doses every 10 mins until pain managed to a max of 10mg.	2-5mins	15-20 mins	Maternal 1.7-4.5 hrs Neonate 6. 5 hrs
Morphine IM 10mg undiluted	≤50kg woman=5mg >50kg woman=10mg	10-12 mins	30-60 mins Lasting ≤ 7 hours	Maternal 2-4 hrs Neonate 13.9 hrs
Fentanyl IV 100mcg/ml fentanyl amp diluted with 9ml 0.9% sodium chloride = 10mcg/ml **Fentanyl IM not recommended in Obstetrics**	20mcg doses every 10 mins until pain managed **Max doses** ≤50kg =50mcg >50kg =100mcg	1 min	5 mins	Maternal 3-4 hrs Neonate 1.25-7.5 hrs

7. Contraindications to Opioid Use

- Hypersensitivity to opioids
- Preterm labour
- Reduced platelet count or anticoagulant disorders
- Cardiac arrhythmia
- Vagolytic action which can significantly increase the ventricular response rate
- Respiratory depression or depleted respiratory reserve e.g. bronchial asthma

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- Severe CNS depression
- Pre-eclampsia or eclampsia
- Convulsive states
- Diabetic acidosis
- Head injury, raised ICP, brain tumour
- Acute alcoholism
- Renal failure
- Chronic opioid use either for chronic pain management or the methadone programme (opioid substitution)
- Known inability to convert from synthetic opioid to opioid

8. Opioid Cautions

- Opioids cause sedative effects and respiratory depression especially when administered rapidly so best practice to administer an opioid IV is a slow push, once diluted correctly
- Opioids readily cross the placenta and can cause short term reduced variability of the fetal heart rate pattern and sedative effects and respiratory depression in the neonate
- Opioids must not be prescribed to women in premature labour due to the risk of increased respiratory depression in the neonate
- Pethidine peaks in the baby's bloodstream 1-5 hours following maternal administration
- Morphine can prolong labour by reducing the strength and frequency of uterine contractions
- Use of morphine with biliary colic, combining with an SSRI (e.g. citalopram), antihypertensive & muscle relaxant drugs requires an anaesthetic referral for labour pain relief
- Extremes of weight: < 45kg or > 120kg may affect the effect of the opioid. Please discuss the woman's requirements with the anaesthetist

Pain relief options for women admitted under obstetric care require a three way conversation between the LMC obstetrician, the woman and the midwife caring for her

9. Side Effects of Opioid Administration

Maternal side effects

- Nausea
- Vomiting
- Light headedness
- Itching
- Dizziness
- Sedation
- Dysphoria
- Constipation – decrease in GI motility
- Sweating
- Urinary retention
- Loss of protective airway reflexes
- Hypoxia due to respiratory depression

Neonatal side effects

- Muscle tone depression
- Respiratory depression

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- Central Nervous System depression
- Impaired early breastfeeding
- Altered neurological behavior
- Decreased ability to regulate body temperature

Morphine will transfer to breast milk in small amounts

Naloxone must be available to treat babies experiencing respiratory depression. Caution is required as the effect of Naloxone may wear off before the effect of pethidine due to pethidine's long half- life. The main metabolite of pethidine is norpethidine which has a very long half- life (14-21h in adults and 63 hrs in babies). **Accumulation of norpethidine may cause anxiety, twitching and convulsions – note that naloxone may be ineffective at reversing these effects.**

10. References

Reviews	Goodson,C. & Martis, R.(2014). Pethidine: to prescribe or not to prescribe? A discussion surrounding the use of pethidine's place in midwifery practice and New Zealand prescribing legislation. NZCOM, (49), p 21-25. Anderson, D. (2011) A Review of Systemic Opioids Commonly Used for Labor Pain Relief. *J. of Midwifery and Women's Health* 2011; 56:222-239
Medsafe data sheets	Morphine, Fentanyl, Pethidine
Legislation	Misuse of Drugs Regulations amendment Medicine Act Amendment
Consensus statement	New Zealand College of Midwives 2014 Consensus Statement: Prescribing and administration of opioid analgesia in labour. www.midwife.org.nz/quality-practice/practice-guidance/nzcom-consensus-statements
Midwifery Council	Midwifery Council of New Zealand 2014 Prescribing of controlled drugs by midwives. https://www.midwiferycouncil.health.nz/sites/default/files/for-midwives/Opiates%20scope%20of%20practice%20with%20guidance%20notes%20290714.pdf
WDHB policy	Adult Pain Management – Opioid Protocol – Oral & IV – Acute Pain (Adults) Pxyis Medstation Medication Management Fetal Assessment in Labour
NICE Guideline	https://www.nice.org.uk/guidance/cg190/chapter/Recommendations#pain-relief-in-labour-nonregional
Other DHB guidelines on opioids in labour	Northland, Counties, Waikato, Canterbury, Hawkes Bay, MidCentral, Nelson, TDHB, Hutt Valley, Capital & Coast and Marlborough