



**Administration of Intravenous FentaNYL for  
Pain Relief in Labour**

**THIS IS A CLINICAL GUIDELINE ONLY, INTENDED FOR USE BY PERINATAL HEALTH  
PROFESSIONALS.**

All policies and procedures must be approved by the appropriate processes within each facility  
(i.e.: Maternal/Child or Perinatal Committee, Medical Advisory Committee etc.).

## INTRODUCTION

FentaNYL is a lipid-soluble synthetic opioid with an analgesic potency 75-100 times greater than morphine and 800 times that of meperidine. Additionally, fentaNYL lacks active metabolites and produces potentially fewer and less severe maternal side effects than morphine or meperidine. When administered intravenously it has a rapid onset of action (3-5 minutes, peak effect 5-15 minutes) with a relatively short duration of action of 30-60 minutes, a maternal T<sub>1/2</sub> (half-life) of < 1 hour and a neonatal T<sub>1/2</sub> of 1-6 hours. These combined properties make fentaNYL a suitable option for intrapartum pharmacological pain management.

Intravenous (IV) fentaNYL administration is not without risk. **Side effects are dose-related:**

<b>Potential side effects associated with intrapartum opioid use include:</b>	
<i>Maternal</i>	nausea, vomiting, dysphoria, delayed gastric emptying, respiratory depression and desaturation, allergic or hypersensitivity reaction including anaphylaxis.
<i>Fetus/newborn</i>	decreased fetal heart rate and/or variability, respiratory depression, desaturation up to 12 hours of age, possible interference with cuing and feeding efforts. <i>Newborn side effects depend on the dose and timing of maternal opioid administration.</i>

Because of the potential for adverse effects Registered Nurses, midwives, or physicians must demonstrate competency in safe administration of fentaNYL. Demonstration of initial and ongoing competency regarding intrapartum IV fentaNYL administration is a facility-specific responsibility, but should include education, practice supports such as local clinical policy, and confirmation by locally acknowledged content and/or practice experts.

A physician's order is required before the administration of fentaNYL.

RNs who administer IV fentaNYL must also have current provider status for Cardio-Pulmonary Resuscitation and Neonatal Resuscitation (CPR and NRP).

Women requiring IV fentaNYL during active labour, as determined by cervical change and contraction pattern, must have a vaginal examination performed within 30 minutes prior to receiving the drug, with the findings documented.

*Information about pain management options for labour and birth should be shared with every woman during her prenatal care. This information should include indications for, as well as risks and benefits of pain management options available in the location where she chooses to labour. Her preferences and concerns should be addressed and taken into consideration when presenting options to her. Antenatal consultation with an anaesthesiologist should be arranged when indicated.*

**Contraindications to use of FentaNYL:**

- Allergy to fentaNYL
- Uncorrected hypotension or hypovolemia
- Liver or kidney disease
- Significant respiratory compromise (e.g. severe asthma, cystic fibrosis, COPD, obstructive sleep apnea, etc.)
- Concurrent use of monoamine oxidase inhibitors (MAOI) or MAOI use within the previous two weeks
- Presence of fetal acidosis
- Maternal respiratory rate < 8/minute, or O<sub>2</sub> saturation < 94%
- Inability to provide 1:1 intrapartum care

**Use with Caution:**

- Preterm labour (increased risk of respiratory depression in the neonate)
- Obesity: BMI > 45 (increased risk of airway complications and of undiagnosed sleep apnea)
- Women who have received other opioids (depending on the duration of action), or repeated doses of fentaNYL.
- Within ½ hour of anticipated delivery
- Concomitant use of antipsychotics
- Women at high risk for emergency cesarean delivery (e.g. evidence of fetal compromise, multiple fetuses)
- Women with a history of difficult intubation
- Presence of hypertensive disease of pregnancy (end-organ involvement increases sensitivity to hemodynamic effects of fentaNYL)
- Allergy or hypersensitivity reaction to other narcotics as cross reactions may occur

***GUIDING PRINCIPLES*****Informed Decision-Making:**

The woman must be provided with information about concomitant potential maternal and neonatal side effects of IV fentaNYL, its onset and peak times, its effect on the progression of labour and its effect on the establishment of breastfeeding. Informed (verbal) consent must be obtained and documented.

**Dilution Instructions:**

FentaNYL for IV administration is supplied in a concentration of 50 micrograms/mL. Dilute 100 micrograms (2 mL) in 8 mL of normal saline to obtain 10 mL of solution. This results in a final concentration of 10 micrograms/mL.

**Administration:**

Subcutaneous (SC) and intramuscular (IM) routes of administration involve painful injections, delay in onset, and variable absorption leading to unpredictable plasma levels. Because

fentaNYL has a short half-life, multiple doses may be required and so **it is recommended that fentaNYL be given by the direct IV route**. IV administration has a faster onset with less variability of peak concentrations, and enables more effective titration of dosing. Methods of IV administration include direct intermittent boluses provided by the RN, midwife, or physician; or via patient controlled analgesia (PCA) method.

**FentaNYL should NOT be administered by continuous infusion** as this may deliver more medication than is required, with a subsequent increase in side effects and no improvement in therapeutic effect as compared to intermittent direct IV administration.

**Administer using slow IV push method** (rapid IV infusion may result in skeletal muscle and chest wall rigidity, impaired ventilation, respiratory distress, apnea or bronchoconstriction).

As stated above, fentaNYL is associated with maternal and neonatal respiratory depression. Several studies report an increased use of Naloxone with intrapartum use of IV fentaNYL. When fentaNYL is given via IV PCA device, there is reportedly an increased association with neonatal Naloxone (Narcan) administration. **Naloxone should be readily available for the affected mother or neonate (see administration guidelines below).**

**Neither initial nor subsequent doses of fentaNYL should be administered to a woman with a respiratory rate < 8 breaths/minute or an O<sub>2</sub> saturation < 94%.**

## **DOSING GUIDELINES FOR FENTA NYL**

- ❑ **Initial dose:** 0.5 – 1 microgram/kg (maximum 100 micrograms) slow IV push.
- ❑ **Wait 5 – 10 minutes for effect.** Repeat 0.5 – 1 microgram/kg q 5 - 10 min until adequate analgesia or maximum dosage is reached.
- ❑ **Maximum hourly dose:** 2 micrograms/kg OR 200 micrograms/hr (2 – 4 doses/hr).
- ❑ Further doses of 0.5 micrograms/kg may be administered every 30 minutes as required. If satisfactory pain relief is not achieved, or administration exceeds 5 hours or a total of 400 micrograms, anaesthesia should be consulted and consideration given to alternate pharmacological or regional methods of pain management (e.g. epidural analgesia or IV PCA FentaNYL).

### Monitoring:

- ❑ **Respiratory rate**
  - Monitor and record prior to administration and for 30 minutes following each dose, at the same frequency as other maternal vital signs.
- ❑ **Maternal oxygen saturation (SpO<sub>2</sub>)**
  - All women receiving IV fentaNYL should have their SpO<sub>2</sub> CONTINUOUSLY monitored for at least 30 minutes following the most recent dose of fentaNYL. This should be recorded at the same frequency as other maternal vital signs. If desaturation occurs, manage as recommended below and continue to monitor.

- If SpO<sub>2</sub> falls below 92%, supplemental oxygen should be provided until the saturations remain above 92% on room air.
- ❑ **Fetal Monitoring**
  - Monitor and record as per SOGC guideline for intrapartum fetal surveillance (2007). Opioids commonly reduce fetal heart rate (when using intermittent auscultation) and can also cause a decrease in the baseline and variability (if using continuous electronic fetal monitoring).

## **MANAGEMENT OF ADVERSE REACTION**

Perinatal care providers must always be prepared to respond immediately and appropriately to an allergic or adverse reaction following the administration of intravenous fentaNYL.

### In the event of an adverse reaction:

- ❑ Immediately stop administration of fentaNYL and ASK FOR HELP – alert a nurse, responsible physician/midwife or the anaesthesiologist. If the reaction is severe consider calling a Code Blue.
- ❑ Administer oxygen, begin or continue oxygen saturation monitoring and initiate cardio-pulmonary resuscitation if required.
- ❑ Prepare to administer Naloxone as described below in the event of respiratory depression.
- ❑ DOCUMENT accurately the reaction, interventions, and responses in the health record.
- ❑ Follow-up: Ensure the woman and her family are notified of the reaction; discuss implications for future use of the drug.

### **NALOXONE (NARCAN) ADMINISTRATION**

Since fentaNYL is a potent, short-acting opioid that may depress maternal and neonatal respiration, Naloxone (Narcan) should be readily available. Naloxone is a narcotic antagonist which will transiently reverse the effect of narcotics.

#### Dosing guidelines for Naloxone:

**Adult:** 0.4-2 mg/dose IV every 2-3 minutes as needed. Use 0.1-0.2 mg IV every 2-3 minutes as needed for opioid-dependent patients

**Lower doses may be effective without eliminating the therapeutic effect of fentaNYL; however, maternal respiratory depression is an obstetrical emergency. If there is no response after 10 mg, diagnosis of opiate toxicity should be questioned.**

**Neonate:** 0.1 mg/kg/dose IV/IM. Repeat q2-3 minutes until reversal achieved.

**Depending on the dose and timing of maternal fentaNYL administration, the duration of action may exceed that of Naloxone; therefore repeat doses may be needed.**

- ❑ Preferred route is IV (quickest onset of action), but may also be given IM, ET, or SC.
- ❑ Onset of action may be delayed when given IM if patient has poor perfusion.

- ❑ Abrupt reversal of narcotic depression may result in symptoms of withdrawal in neonates of narcotic-dependent mothers.

### **Patient Monitoring after IV Naloxone Administration:**

- ❑ Adult: assess to ensure respiratory rate is greater than 8/minute. Consult anaesthesia for recommendations regarding ongoing care.
- ❑ Neonates who receive Naloxone must be observed for a minimum of TWO hours post-administration for signs of respiratory depression.
- ❑ Naloxone may be considered for infants who exhibit continued respiratory depression following birth once effective ventilation has been established, when there is a history of maternal fentaNYL administration within the past 4 hours.
- ❑ Naloxone is not indicated for prophylactic use for infants who do not exhibit respiratory depression.
- ❑ Neonates who do not receive Naloxone at birth, but whose mothers receive fentaNYL within four hours of delivery, must be observed for at least TWO hours post delivery in the birth unit.

Because the risk of neonatal respiratory depression and desaturation increases with larger doses of fentaNYL, oxygen saturation monitoring should be considered for at least 2 hours (longer – up to 8 hours - if there is an episode of desaturation) after birth. In newborns whose mothers have received >250 micrograms.

## **REFERENCES**

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