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# **Guideline For Remifentanil Patient Controlled Analgesia (PCA) For Labour**

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Originator: Anaesthetics Dept / Labour Ward Forum  
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Approved by: Labour Ward Forum

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## 1.0 INTRODUCTION

Remifentanil has been identified as safe and effective analgesia for use in the intrapartum period. Acting within 1-2 minutes and suited to patient-controlled administration, this offers another analgesia choice for women in labour at Singleton Hospital.

In common with other Opioids it may cause respiratory depression, pruritis, nausea and vomiting. It crosses the placenta but has no clinically significant neonatal depressant effects at commonly used doses.

## 2.0 INDICATIONS FOR REMIFENTANIL PCA

Remifentanil PCA is used as an analgesic for labour as an alternative to pethidine or epidural in patients who do not want, or cannot have an epidural.

Remifentanil is currently not licensed for use via PCA and so must be prescribed by an anaesthetist.

Only midwives who have undergone a period of training and have been assessed as competent may monitor a patient using a remifentanil PCA.

## 3.0 CRITERIA FOR USE

### **Only for use on central delivery suite**

In general, any woman being offered remifentanil PCA should be more than 36 weeks' gestation and be in established labour. It can be used at <36 weeks if analgesia is required for IUD or termination.

Remifentanil can be considered for use at a gestation of less than 36 weeks if there is a clinical need and the woman cannot have an epidural.

- The anaesthetist should discuss its use in these rare circumstances with senior obstetricians and the Consultant Anaesthetist.

Entonox may be used in addition.

SpO<sub>2</sub> monitoring must be established before the woman starts using the PCA and must be monitored continuously while the remifentanil PCA is being used.

A Remifentanil observation chart must be completed while the PCA is in-situ.

**A midwife must be assigned to give one to one care. If the midwife is required to leave the room for any period at all, she must ensure that the woman cannot use the PCA during this time.**

## 4.0 CONTRAINDICATIONS FOR REMIFENTANIL PCA

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- Other parenteral opioid administration within preceding four hours
- No PCA trained midwife to administer 1:1 care
- Allergy to opioids (some opioid allergies may still allow remifentanyl to be used)

#### **Relative contraindications:**

- Multiple pregnancy ▪ Pre-eclampsia
  - Increased BMI >45
- (Epidural better in these cases as has other benefits besides analgesia)

## **5.0 PROFESSIONAL ROLES**

### **5.1 Patient preparation: -**

- The patient should be issued with, and have read, the remifentanyl PCA patient information leaflet.
- The patient should be informed of the possible side-effects including drowsiness, nausea, dizziness, requiring oxygen and respiratory depression (very rare).
- In particular, the woman should be informed that approximately one woman in ten using Remifentanyl PCA will experience transient lowered oxygen saturation levels requiring the administration of additional oxygen via nasal specs.
- A dedicated intravenous cannula (22g Blue or 20g Pink) is required. Do not administer any other drugs or fluids via this cannula.
- The patient should be shown how to use the PCA and should be told to press the button at the start of a contraction **only the patient can press the button.**
- A pulse oximeter (oxygen saturation) probe must be attached before the PCA is started.
- Continuous CTG monitoring is required whilst the remifentanyl PCA is in use
- If an epidural is requested the Remifentanyl PCA should be discontinued when the epidural is established.
- If the patient needs surgical delivery the PCA can be continued into theatre to aid with keeping the patient comfortable for the anaesthetic. The Remifentanyl PCA should be stopped as soon as the regional technique is sited.

### **5.2 Equipment required:-**

#### **Equipment required**

- Remifentanyl PCA pump
  - 50 ml bag saline
  - 2 mg ampoule of Remifentanyl
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- 50ml syringe
- Drawing up needle
- Connect-a-line 1 - single lumen set
- Saline flush
- Remifentanil chart
- Drug additive label
- PCA key
- Cannulation equipment (for dedicated cannula)

#### Equipment in room

- Nasal cannula
- Non re-breathing face mask
- Self-inflating bag, valve and mask (Ambubag)

### 5.3 Drawing up and dose

#### **The remifentanil syringe must be drawn up by the anaesthetist**

Draw up 50ml NaCl 0.9% into 50ml syringe. Inject into 2mg remifentanil, ensure all dissolved and aspirate into syringe. Label syringe with patient details, drug and diluent, date and time of being drawn up. Sign syringe and ensure countersigned. Sign controlled drug book.

#### **Final solution concentration to be 40 microgrammes/ml of Remifentanil**

Flush main PCA line with remifentanil solution in 50ml syringe. Insert syringe into PCA.. Choose correct PCA protocol depending on patient's weight (see below)

**If  $\geq 50\text{Kg}$  (STANDARD): 40 microgrammes bolus (1ml)**

**If  $< 50\text{Kg}$  (LOW DOSE): 28 microgrammes bolus (0.7ml)**

### 5.4 **Programming the pump**

We have now changed to the Arcomed Ag, a touchscreen automated plunger pump

#### Step by step guide to setting the pump:

- Plug pump into mains supply
  - Unlock with key on left side of pump
  - Switch on (button on front on the left)
  - Swivel locking mechanism outwards and pull main front door downwards (exposing the slot for the syringe)
  - Pull white level (that traps the syringe in place) downwards
  - Insert syringe with plunger facing rightwards
  - Press and hold I button for pump to close and grip on the syringe plunger
  - Lock with key on the left side of the pump
  - Confirm syringe with II button
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- On the touchscreen press "Maternity"
- Select either Remifentanil 40mcg bolus or 28mcg bolus (low) on touchscreen
- Enter password 5101 using the arrows under the word "Data" (ignore first arrow on the left of the black display, eg the 5 should be on the second arrow from the left)
- Confirm with II button
- Check info on the screen is correct and confirm with II button
- Press start button (it is now ready to use and patient button should glow red)

#### Changing from Normal to Low dose:

- Press stop button
- Press II button for menu
- Select "New Therapy" from touch screen
- Insert 5101 password as above
- Confirm with II button
- Confirm new therapy
- Click "Maternity" on touchscreen
- Select Remi Low on touchscreen
- Enter password 5101 as above
- Confirm with II button
- Press start

▪ **Irrespective of programme used, final solution should be 40 mcg / ml**

**Anaesthetist MUST stay in room for first 4 PCA presses. ▪**

**Ensure midwife knows not to leave patient alone with PCA**

\*N.B. Remifentanil is stable for 24 hours at room temperature after reconstitution

#### 5.5 Audit

Anaesthetist should fill in our follow up / general audit form.

Adverse reactions or incidents should be reported by the usual clinical incident reporting mechanism. These can be reported by any member of staff.

### **OBSERVATIONS**

#### 6.0

- Remifentanil PCA observation sheet to be completed for all women using Remifentanil PCA including completion of "anaesthetist to ensure" and sideeffect section.
  - Baseline observations of maternal pulse, BP, respiratory rate, saturations, sickness, pain and sedations scores should be recorded.
  - A sedation score is to be recorded every 30 minutes (see sedation scale below)
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- Continuous SpO<sub>2</sub> monitoring must be established prior to starting PCA and recorded on obs sheet
- CTG monitoring is required

**NOTE:** Sedation score is recorded on a scale from AVPU

A = Awake and alert

V = Drowsy, responds to voice

P = very drowsy, responds to pain / shaking only U

= Unroutable, unresponsive to pain / shaking 6.1 Indications for

### Oxygen therapy

If saturations <90% give 2 litres/min of oxygen via nasal cannula

If saturations <90% despite oxygen contact anaesthetist urgently (extension 25857) and remove the PCA button from patient.

### 6.2

Indications for contacting the anaesthetist:-

- A sedation score of P or U
- Respiratory rate of less than 8 breaths per minute
- SpO<sub>2</sub> remaining below 90% despite oxygen via nasal specs
- Any other concerns

Obstetric anaesthetist (junior) 25857

2<sup>nd</sup> on call anaesthetist 25854

Obstetric anaesthetic consultant (8AM till 5PM weekdays) 25858

### 6.2 POINTS OF SAFETY:-

- **Always use a dedicated cannula**
- **Patient needs constant 1 to 1 midwifery care when using PCA, if midwife leaves room, then PCA must be removed from patient.**
- **Always flush the cannula after the PCA is removed with 5 ml saline** ▪ **Do not give any other drugs via the PCA cannula.**
- **Only the patient is to use the PCA button**
- **The PCA button is not to be pressed by midwifery staff or the patient's relatives**
- **The anaesthetist must be present observing the woman for the first 4 boluses**

### 6.3 APNOEA

Either Apnoea lasting > 10 seconds or Resp rate <8

- Remove PCA button from patient
  - Encourage to breathe
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**If there is still no respiratory response despite strong verbal encouragement (e.g. by 20 seconds) emergency help should be sought (pull emergency buzzer).**

- **Lie flat with full left lateral tilt**
- **Administer 100% oxygen with non re-breather face mask**
- **If no respiratory effort then ensure patient's airway is open and attempt ventilation with ambubag until arrival of the emergency team (including anaesthetist) to determine optimum airway management.**

**2 further occasions that patient requires verbal encouragement to breathe**

- **Withhold remifentanil PCA**
- **Urgent anaesthetic review and consideration of alternative pain relief options**
- **If using standard dose (40 microgramme) remifentanil then can try patient with low dose (28 microgramme) remifentanil**
- **If reducing dose is done then anaesthetist must stay in the room for first 4 presses at new dose.**

## **7.0 TROUBLESHOOTING (also to be found on Remifentanil PCA chart)**

Respiratory rate <8 and / or sedation score P or U

- Urgent medical review from on call anaesthetist (ext 25857)
- Remove PCA handset from patient
- Stimulate patient
- Administer 15L oxygen via non re-breathing mask
- Give naloxone as per remifentanil PCA chart
- If no breathing then pull emergency buzzer and put out obstetric cardiac arrest call.
- Once improving continue to monitor closely as per medical emergency team instructions (minimum ¼ hourly) till resp rate >12/minute.

Unrelieved pain with a pain score of 3 (severe)

- Check the infusion system is functioning and the IV access is patent.
- Check syringe is not empty.
- Check PCA demand button is attached to pump.
- Does the patient understand how to use the demand button? ▪ Contact on-call anaesthetist for labour ward (CISCO 25857) ▪ Discuss with patient options for further analgesia i.e.
  - If using low dose remifentanil then can increase to standard dose. ○ Epidural analgesia

Indications for Oxygen therapy

- If saturations <90% give 2 litres /min of oxygen via nasal cannula.
  - If saturations <90% despite oxygen contact anaesthetist urgently (extension 25857) and remove the PCA button from patient.
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Indications for contacting the anaesthetist:-

- A sedation score of P or U
- Respiratory rate of less than 8 breaths per minute
- SpO<sub>2</sub> remaining below 90% despite oxygen via nasal specs
- Any other concerns

Nausea and Vomiting (PONV):

- Ondansetron prescribed on PRN section of remifentanil PCA chart.
  - If persistent nausea or any vomiting then give anti-emetic and consider giving regularly in labour.
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- If ineffective then contact anaesthetist to review
- Itching:
- If problematic consider IV naloxone 50mcg PRN, chlorphenamine 4mg PRN or Ondansetron 4mg
  - If no improvement, seek advice from the Anaesthetist on labour ward [CDS].

## **8.0 OTHER CARE ISSUES**

Eating. It is not recommended to eat whilst using the remifentanil PCA though the woman can drink clear fluids. Ensure omeprazole is prescribed.

Mobility. Women should be risk assessed as to whether it is appropriate for them to mobilise, turn on all fours etc. Consider waiting for at least 30 minutes of using remifentanil or if adding entonox, to allow a period of adjustment, before making any such risk assessment.

Guideline written by

Obstetric anaesthetic team, in particular:  
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Edited By Dr Doug Morgan Dec 2024

### **Acknowledgement to the Royal Ulster hospital**

Dr. D. Hill  
Consultant Anaesthetist Appendix

A: Remi chart

## Maternity Services

### Checklist for Clinical Guidelines being Submitted for Approval by Maternity Quality & Safety Group

Title of Guideline:	Guideline For Remifentanil Patient Controlled Analgesia (PCA) For Labour
Name(s) of Author:	Doug Morgan
Chair of Group or Committee approving submission:	Labour Forum
Brief outline giving reasons for document being submitted for ratification	
Details of persons included in consultation process:	
Name of Pharmacist (mandatory if drugs involved):	
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Please list any policies/guidelines this document will supercede:	
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Please indicate key words you wish to be linked to document	Obstetrics, remifentanil, pain relief, analgesia
File Name: Used to locate where file is stores on hard drive	