BACKGROUND/RATIONALE

Remifentanil is a short acting synthetic opioid analgesic drug. It provides effective pain relief for women in labour, which is delivered via intravenous administration managed via patient controlled analgesia (PCA) pump. In common with other opioid analgesic drugs (morphine and pethidine); it can cause respiratory depression, sedation, nausea and vomiting, and pruritus. Remifentanil freely crosses the placenta but there is no clinical evidence of respiratory depressant on the fetus, at doses commonly used. Fetal heart rate decelerations or reduced beat to beat variability have been noted from excessive demand bolusing.

Remifentanil PCA; use is widespread but un-licensed; therefore it must be prescribed by an anaesthetist or obstetrician prior to setting up for the procedure.

EXPECTED OBJECTIVES / OUTCOME

The safe and effective administration of Remifentanil during labour

INDICATIONS

Pain relief in labour for women. In particular for
- Fetal death in utero
- Epidural analgesia contra indicated or unachievable
- Mid trimester abortion for fetal abnormality

CONTRAINDICATIONS

- Allergy to opioid
- Midwife unable to provide one to one care, which is the recommendation when Remifentanil PCA is being delivered.
- Caution for gestation <36 weeks

EQUIPMENT

- CADD Solis pump
- Clear CADD administration line

ISSUES TO CONSIDER

- If a patient becomes excessively drowsy between contractions, or Sa02 falls below 93%, or respiratory rate falls below 10/min accompanied by sedation, give oxygen, tell the patient to take a deep breath, remove the button from the patient and call the anaesthetic registrar. The bolus dose should be reduced.
Any respiratory depression would last only minutes and improve spontaneously. Naloxone is rarely indicated. After delivery and suturing remove the dedicated IV cannula without flushing and dispose of the remaining Remifentanil appropriately. Record the discard volume. A person skilled in neonatal resuscitation must be present at the time of birth. Remifentanil can rarely cause chest wall rigidity in the neonate making positive pressure ventilation difficult. Naloxone may be required.

PROCEDURE

Patient preparation.

The woman should be issued with and read the Remifentanil PCA information sheet prior to consenting to procedure.

The woman should be informed of all side effects of Remifentanil PCA; such as drowsiness and dizziness.

The woman should be informed that approximately one in ten women experience a drop in their oxygen saturation which requires supplemental oxygen via nasal cannulae.

Do not commence Remifentanil PCA; if baseline oxygen saturation is less the 95 %

Remifentanil PCA: requires a DEDICATED IV cannula (may be 22G), positioned as proximally as possible. (Remifentanil is incompatible with Syntocinon)

The patient should be shown how to use the Remifentanil PCA and instructed to administer a bolus dose just prior to the commencement of a contraction or as soon as it starts.

NOTE: Only the labouring woman can press the Remifentanil PCA demand button. The demand button must not be pressed by non-anaesthetic staff or the birth partner.

Entanox™ may be used at any time during Remifentanil PCA use. If an epidural is requested, Remifentanil PCA must be discontinued once effective epidural analgesia is established.

Usual parameters. Prescribed on the PCA prescription form.

- **Must Not be a Continuous infusion**
  - Remifentanil 2000 micrograms made up with normal saline to a volume of 100 mls. Concentration = 20 micrograms / ml.
  - Bolus dose range starts at 0.25 micrograms / kg (lean body weight) up to 0.5 micrograms / kg.
  - Therefore, most women (about 80kg) start at 20 micrograms bolus dose (1ml).
  - Lockout 2 minutes.
  - The bolus dose can be adjusted as necessary (increment of 10 micrograms [0.5 ml] bolus dose each 10 minutes to a maximum of 0.5 micrograms / kg lean body weight.) Dose increments can only be prescribed by Obstetric or Anaesthetic Registrars and Consultants. Difficulty achieving analgesia should trigger consultation with the Anaesthetic registrar to assess the patient for alternative analgesia.
  
- If sedation / de-saturation occur, remove the button from the patient. Commence oxygen therapy and reduce the bolus dose by 10 micrograms (0.5ml). Return the button when oxygen saturation is > 95% and sedation has improved.

- Remifentanil is stable for 24 hours at room temperature after reconstitution.
Observations and monitoring

- Midwife in attendance at all times.
- Baseline observations of maternal pulse, BP, respiratory rate, SaO2, pain and sedation scores, recorded prior to commencement of PCA.
- Continuous SaO2 monitoring – documented every 30 minutes.
- All other observations @ 30 minutely intervals, best done just after a contraction.
- CTG monitoring not specifically required unless otherwise indicated.

Drug dosage delivered to be documented hourly, including PCA demands and successful attempts

Indications for Oxygen therapy.

- If SaO2 is < 93% for 15 seconds or more, Oxygen (2litres / min) should be administered via nasal cannulae and continued for the remainder of Remifentanil PCA use.
- If SaO2 remains < 93% despite oxygen therapy, remove the hand button from the patient and contact the on call anaesthetic registrar
- Consider oxygen therapy in second stage.

Indications for contacting on call anaesthetic registrar.

- SaO2 of 93 % or less despite oxygen therapy.
- Sedation score of 2 or more Moderate sedation (frequently drowsy unable to stay awake).
- Respiratory rate 10 or less breaths per minute.
- Difficulty achieving analgesia. This patient may require epidural pain relief.

# refer sedation scoring Appendix 1

REFERENCES
Kan RE, Hughes SC, Rosen MA. Intravenous Remifentanil: placental transfer, maternal and neonatal effects. Anaesthesiology 1998; 88:1467-74
Volikas I, Butwick A, Wilkinson C. Maternal and neonatal side effects of remifentanil patient-
controlled analgesia in labour. BJA 2005; 95: 504


APPENDIX 1

Sedation Scores
Zero Awake and Alert

1. Mild sedation, easy to rouse. Patient is able to stay awake
2. Moderate sedation, unable to stay awake
3. Difficult to rouse or un-rousable