

**ALFENTANIL**

**Indications:** analgesia especially during short operative procedure and outpatient surgery; enhancement of anaesthesia; analgesia and suppression of respiratory activity in patients receiving intensive care with assisted ventilation, for up to 4 days

**Cautions; Contra-indications; Side-effects:** see section 4.7.2 and notes above

**Dose:** by intravenous injection, spontaneous respiration, ADULT, initially up to 500 micrograms over 30 seconds; supplemental, 250 micrograms. With assisted ventilation, ADULT and CHILD, initially 30–50 micrograms/kg; supplemental, 15 micrograms/kg

By intravenous infusion, with assisted ventilation, ADULT and CHILD, initially 50–100 micrograms/kg over 10 minutes or as a bolus, followed by maintenance of 0.5–1 micrograms/kg/minute

Analgesia and suppression of respiratory activity during intensive care, with assisted ventilation, by intravenous infusion, initially 2 mg/hour (approx. 30 micrograms/kg/hour) subsequently adjusted according to response (usual range 0.5–10 mg/hour); more rapid initial control may be obtained with an intravenous dose of 5 mg given in divided portions over 10 minutes (slowing if hypotension or bradycardia occur); additional doses of 0.5–1 mg may be given by intravenous injection during short painful procedures

**CD Rapifen® (Janssen-Cilag)**

**Injection,** alfentanil (as hydrochloride) 500 micrograms/mL. Net price 2-mL amp = 72p; 10-mL amp = £3.31

**Intensive care injection,** alfentanil (as hydrochloride) 5 mg/mL. To be diluted before use. Net price 1-mL amp = £2.65

**BUPRENORPHINE**

**Indications:** peri-operative analgesia; premedication; analgesia in other situations, see section 4.7.2

**Cautions; Contra-indications; Side-effects:** see section 4.7.2; effects only partially reversed by naloxone

**Dose:** pain, by slow intravenous injection, 300–450 micrograms

Premedication, by sublingual administration, 400 micrograms

By intramuscular injection, 300 micrograms

**Preparations**

Section 4.7.2

**FENTANYL**

**Indications:** analgesia during operation, enhancement of anaesthesia; respiratory depressant in assisted respiration

**Cautions; Contra-indications; Side-effects:** see section 4.7.2 and notes above

**Dose:** by intravenous injection, with spontaneous respiration, 50–200 micrograms, then 50 micrograms as required; CHILD 3–5 micrograms/kg, then 1 microgram/kg as required

With assisted ventilation, 0.3–3.5 mg, then 100–200 micrograms as required; CHILD 15 micrograms/kg, then 1–3 micrograms/kg as required

▼ **CD Durogesic®:** see section 4.7.2

**CD Sublimaze® (Janssen-Cilag)**

**Injection,** fentanyl (as citrate) 50 micrograms/mL. Net price 2-mL amp = 24p; 10-mL amp = £1.17

Available as a generic from Antigen, Faulding DBL

**MORPHINE SULPHATE**

**Indications:** analgesia during and after operation; enhancement of anaesthesia; pre-operative sedation; analgesia in other situations, see section 4.7.2

**Cautions; Contra-indications; Side-effects:** see section 4.7.2 and notes above.

**Dose:** by subcutaneous or intramuscular injection, up to 10 mg 1–1½ hours before operation; CHILD, by intramuscular injection, 150 micrograms/kg

Postoperative pain, by subcutaneous or intramuscular injection, 10 mg every 2–4 hours if necessary (15 mg for heavier well-muscled patients); CHILD up to 1 month 150 micrograms/kg, 1–12 months 200 micrograms/kg, 1–5 years 2.5–5 mg, 6–12 years 5–10 mg

**Note.** In the postoperative period, the patient should be closely monitored for pain relief as well as for side-effects especially respiratory depression. See also section 4.7.2 for analgesia

**CD Morphine Sulphate Injection,** morphine sulphate, 10 mg/mL. Net price 1-mL amp = 64p; other strengths see section 4.7.2

**CD Morphine and Atropine Injection,** morphine sulphate 10 mg, atropine sulphate 600 micrograms/mL. Net price 1-mL amp = £1.96

**Dose:** premedication, by subcutaneous injection, 0.5–1 mL

**NALBUPHINE HYDROCHLORIDE**

**Indications:** peri-operative analgesia; premedication; analgesia in other situations, see section 4.7.2

**Cautions; Contra-indications; Side-effects:** see section 4.7.2 and notes above; also caution in ambulant patients (impairment of mental and physical ability)

**Dose:** acute pain, by subcutaneous, intramuscular or intravenous injection, 10–20 mg, adjusted according to response; CHILD up to 300 micrograms/kg repeated once or twice as necessary. See also section 4.7.2 for analgesia

Premedication, by subcutaneous, intramuscular or intravenous injection, 100–200 micrograms/kg. Induction, by intravenous injection, 0.3–1 mg/kg over 10–15 minutes

Intra-operative analgesia, by intravenous injection, 250–500 micrograms/kg at 30-minute intervals

**Ⓜ Nubain® (Du Pont)**

**Injection,** nalbuphine hydrochloride 10 mg/mL. Net price 1-mL amp = 73p; 2-mL amp = £1.13

**PAPAVERETUM**

**IMPORTANT.** Do not confuse with papaverine (see section 7.4.5)

A mixture of 253 parts of morphine hydrochloride, 23 parts of papaverine hydrochloride and 20 parts of codeine hydrochloride

**REFORMULATION.** BP 1993, Addendum 1994, includes the following explanation concerning the reformulation of papaveretum: 'papaveretum injection contains the three alkaloids morphine, papaverine and codeine; in reformulating the injection to remove noscapine, the amounts of the other three alkaloids have been maintained; thus the total amount of material per mL has decreased. Before reformulation the lower strength injection (which provides the equivalent of 5 mg of the major component, morphine) contained 10 mg per mL of the four-component material; it now contains 7.7 mg of papaveretum per mL. Likewise, before reformulation the higher strength injection (which provides the equivalent of 10 mg of morphine) contained 10 mg per mL of the four-component material; it now contains 15.4 mg of papaveretum per mL.

The CSM has advised that to avoid confusion the figures of 7.7 mg/mL or 15.4 mg/mL should be used for prescribing purposes.

**Indications:** postoperative analgesia; premedication

**Cautions; Contra-indications; Side-effects:** see section 4.7.2 and notes above

**Dose:** by subcutaneous, intramuscular, or intravenous injection, 7.7–15.4 mg repeated every 4 hours if necessary (ELDERLY initially 7.7 mg); CHILD up to 1 month 115.5 micrograms/kg, 1–12 months 115.5–154 micrograms/kg, 1–12 years 154–231 micrograms/kg

**INTRAVENOUS DOSE.** In general the intravenous dose should be quarter to half corresponding subcutaneous or intramuscular dose.

**CD Papaveretum (Non-proprietary)**

**Injection,** papaveretum 7.7 mg/mL (providing the equivalent of 5 mg of anhydrous morphine/mL), net price 1-mL amp = 71p; 15.4 mg/mL (providing the equivalent of 10 mg of anhydrous morphine/mL), 1-mL amp = 81p

Available from Martindale

**Note.** The name Omnopon® was formerly used for papaveretum preparations.

With hyoscine

**CD Papaveretum and Hyoscine Injection,** papaveretum 15.4 mg (providing the equivalent of 10 mg of anhydrous morphine), hyoscine hydrobromide 400 micrograms/mL. Net price 1-mL amp = 83p

**Dose:** premedication, by subcutaneous or intramuscular injection, 0.5–1 mL

Available from Martindale

**PETHIDINE HYDROCHLORIDE**

**Indications:** peri-operative analgesia; premedication; analgesia in other situations, see section 4.7.2

**Cautions; Contra-indications; Side-effects:** convulsions may occur with excessive doses; see section 4.7.2 and notes above

**Dose:** premedication, by intramuscular injection, 25–100 mg 1 hour before operation; CHILD 0.5–2 mg/kg

Adjunct to nitrous oxide–oxygen, by slow intravenous injection, 10–25 mg repeated when required

Postoperative pain, by subcutaneous or intramuscular injection, 25–100 mg, every 2–3 hours if necessary; CHILD, by intramuscular injection, 0.5–2 mg/kg

**Note.** In the postoperative period, the patient should be closely monitored for pain relief as well as for side-effects especially respiratory depression

See also section 4.7.2 for analgesia

**CD Pethidine (Non-proprietary)**

**Injection,** pethidine hydrochloride 50 mg/mL, net price 1-mL amp = 39p; 2-mL amp = 39p; 10 mg/mL, 5-mL amp = 97p; 10-mL amp = £1.02

Various strengths available from Martindale, Roche

Tablets, see section 4.7.2

With promethazine

**CD Pamergan P100® (Martindale)**

**Injection,** pethidine hydrochloride 50 mg, promethazine hydrochloride 25 mg/mL. Net price 2-mL amp = 69p

**Dose:** premedication, 2 mL by intramuscular injection 1–1½ hours before operation; CHILD, by intramuscular injection, 8–12 years 0.75 mL, 13–16 years 1 mL

**REMIFENTANIL**

**Indications:** supplementation of general anaesthesia during induction and analgesia during maintenance of anaesthesia

**Cautions; Contra-indications; Side-effects:** see section 4.7.2 and notes above

**Dose:** induction, by intravenous infusion, 0.5–1 microgram/kg/minute, with or without an initial bolus by intravenous injection (of a solution containing 20–250 micrograms/mL) over not less than 30 seconds, 1 microgram/kg

**Note.** If patient is to be intubated more than 8 minutes after start of intravenous infusion, initial intravenous injection dose is unnecessary

Maintenance in ventilated patients, by intravenous infusion, 0.05–2 micrograms/kg/minute according to anaesthetic technique and adjusted according to response; supplemental doses in light anaesthesia, by intravenous injection every 2–5 minutes

Maintenance in spontaneous respiration anaesthesia, by intravenous infusion, initially 40 nanograms/kg/minute adjusted according to response, usual range 25–100 nanograms/kg/minute

CHILD 2–12 years, limited experience (see product literature)

▼ **PoM Ultiva® (GlaxoWellcome)**

**Injection,** powder for reconstitution, remifentanyl (as hydrochloride), net price 1-mg vial = £5.50; 2-mg vial = £11.00; 5-mg vial = £27.50