Interior Health

PROPOFOL
(PROE po fole)

OTHER NAMES	CLASSIFICATION	*ALLERGY ALERT
Diprivan®, Disoprofol	Anaesthetic – General	See Contraindications HIGH ALERT MEDICATION

INDICATIONS
HEALTH CANADA APPROVED.[1]
- Induction and maintenance of general anaesthesia.
- Initiate and maintain sedation during diagnostic procedures and in conjunction with local/regional anaesthesia during surgical procedures.
- For short-term (less than 48 hrs) sedation in intubated, mechanically ventilated, head injured adult patients in the Intensive Care Unit (ICU).

NON HEALTH CANADA APPROVED INDICATION BUT SUBSTANTIATED IN THE LITERATURE:
- For treatment of refractory status epilepticus in intubated adults not responding to phenytoin/lorazepam[7]

CONTRAINDICATIONS[1]
* *Hypersensitivity to propofol or its emulsion, which contains soybean oil, glycerol and egg phosphatide.*

CAUTIONS[1, 2]
- Not recommended for continuous sedation of children less than 18 years of age due to serious and fatal reactions. This does not apply to its use as an anaesthetic in children over 3 years of age.
- Elderly, debilitated patients, patients with hypotension, or severe cardiac disease (ejection fraction less than 50%); may be at greatest risk for hypotension.
- Cirrhosis: recovery time may be longer.[3]

DRUG INTERACTIONS [1]
- CNS depressants, e.g. inhalation anaesthetics, narcotics, benzodiazepines: effects will be potentiated.

PREGNANCY/BREAST FEEDING
- Contact pharmacy for most recent information.

ADMINISTRATION[1]

MODE	DIRECT IV	INTERMITTENT INFUSION	CONTINUOUS INFUSION
	YES	NO	YES
WHO MAY GIVE	Physician or Registered nurses with Critical Care/ER skills - see requirements and required monitoring.		Registered nurses with Critical Care/ER skills – see requirements and required monitoring.
ADULT	Undiluted over 3-5 minutes.		**ADULT STANDARD CONCENTRATION: = 10 mg/mL** Dose/rate charts available.** **Choose correct chart: 1. mcg/kg/min 2. mg/kg/hr
PEDIATRIC	As above.		**PEDIATRIC STANDARD CONCENTRATION: = 10 mg/mL** Rate/dose chart available. Not recommended.
NEONATE	Not recommended.		Not recommended.

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REQUIREMENTS	**Direct IV:** Under the *direct* supervision of a physician, i.e. physician must be *physically* present. (bolus can be manual (ie via syringe) or using an infusion pump) or HART RN's with current competency validations under the remote medical direction of a Transport Advisor in the presence of a HART RRT who has completed the HART advanced airway certification. **Continuous infusion:** Intubated, mechanically ventilated patient and IV infusion device. Vented set, change tubing every 12 hours Change undiluted infusion bottles every 12 hours

MONITORING
REQUIRED for IV administration

Continuous infusion:

- Continuous O_2 sats and ECG monitoring
- At start of infusion and with each dosage increase, baseline BP, then q5 min until stable, then q1h.

RECOMMENDED

- Assess level of consciousness as required.
- Monitor triglycerides should infusion continue for longer than 3 days.

RECONSTITUTION

- Availability (within IH): 10 mg/mL (20 mL ampoule & 100 mL infusion bottle). Stored at room temperature.
- Product is an oil-in-water emulsion.
- **Shake well before using.**

COMPATIBILITY/STABILITY[1,4]

- Compatible with D5W, D5-1/2NS, D5LR and lactated Ringer's solutions.
- No information on compatibility with NS.
- Ampoule and bottle should not be refrigerated.
- Propofol is an oil-in-water emulsion. Do not use if phase separation is evident.
- When a bottle is used for continuous infusion, both bottle and tubing must be used within 12 hours of hanging or the remainder discarded.
- Stable for 12 hours in a syringe. Solutions do not need to be protected from light during infusion.
- *Compatible via Y-site:* acyclovir, alfentanil, aminophylline, ampicillin, amrinone, atropine, calcium gluconate, ceFAZolin, cefotaxime, cefTAZidime, ceftizoxime, cefTRIAXone, cefuroxime, chlorproMAZINE, ciprofloxacin, cisplatin, clindamycin, cycloPHOSPHAMIDE, cycloSPORINE, dexamethasone, digoxin, diphenhydrAMINE, DOBUTamine DOPamine, doxycycline, droperidol, enalaprilat, ePHEDrine, EPINEPHrine, esmolol, fentanyl, fluconazole, furosemide, glycopyrrolate, haloperidol, heparin, hydrocortisone, HYDROmorphone, hydrOXYzine, insulin (regular), isoproterenol, ketamine, labetalol, lidocaine, lorazepam, magnesium sulfate, mannitol, meperidine, metoclopramide, midazolam (in D5W), milrinone, morphine, naloxone, nitroglycerin, nitroprusside, norepinephrine, pancuronium, penTOBarbital, pHENobarbital, phenylephrine, piperacillin, potassium chloride, prochlorperazine, propranolol, ranitidine, remifentanil, sodium bicarbonate, succinylcholine, SUFentanil, vancomycin, vecuronium
- *Incompatible via Y-site:* amphotericin B, bretylium, calcium chloride, diazepam, gentamicin, methotrexate, methylPREDNISolone, phenytoin, tobramycin, verapamil
- For additional drug-drug compatibility contact Pharmacy.

ADVERSE EFFECTS[1, 2]

CARDIOVASCULAR

- Hypotension may be severe, generally dose and infusion rate dependent. Responds to IV fluids, and/or vasopressor therapy if required.
- Bradycardia.
- Asystole, heart block, and other arrhythmias (rare).

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CNS
- Convulsions, opisthotonus, myoclonus and choreoathetoid movements have occurred during emergence from anaesthesia. Transient, not believed to represent true cortical seizure activity.

MISCELLANEOUS
- Respiratory acidosis during weaning.
- Anaphylaxis/anaphylactoid reactions. (rare).
- Pain at injection site: can be minimised by using large veins, or a central line.
- Transient green discolouration of the urine.
- Propofol infusion syndrome: a RARE but potentially lethal condition characterized by lactic acidosis, rhabdomyolysis, and cardiovascular collapse following high dose infusion (greater than 4-5 mg/kg/hour) over prolonged period of time (greater than 48 hours). Early warning signs include unexplained lactic acidosis, lipemia, and Brugada-like ECG changes (ST-segment abnormalities in leads V_1 through V_3)[9].

DOSE

ADULT

Sedation in intubated, mechanically ventilated patients:[1]
- Initial dose: 5 mcg/kg/min (0.3 mg/kg/hour) for at least 5 minutes. Adjust according to clinical requirements. Increase rate in increments of 5 – 10 mcg/kg/min (0.3 – 0.6 mg/kg/hour) at intervals of 2-5 minutes.[5]
- Maintenance: 5 – 50 mcg/kg/min (0.3-3 mg/kg/hour). Higher doses may be required.[2]

Average maintenance dose:

Under 55 years	38 mcg/kg/min (2.3 mg/kg/hour)
Over 55 years	20 mcg/kg/min (1.2 mg/kg/hour)
Post open heart surgery	11 mcg/kg/min (0.7 mg/kg/hour) because of high intraoperative opiates.[6]

- Bolus administration of 10 to 20 mg should only be used to rapidly increase sedation depth in patients in whom hypotension is not likely to occur. See CAUTIONS.

Refractory status epilepticus – in intubated adult patients not responding to lorazepam/phenyTOIN:[7, 8]
- Loading dose: 3-5mg/kg, followed by an infusion of 30-100 mcg/kg/min titrated to EEG seizure suppression
- NOTE: after 12 hours, of seizure suppression, the dose should be gradually titrated by 50% over the next 12 hours and then titrated to 0% over the subsequent 12hrs. If seizure activity should recur during the weaning period, a further loading dose of 1-3mg/kg should be administered followed by infusion with the rate increased to obtain another 12hr seizure-free period.

PEDIATRIC[1]
- Not recommended for sedation in pediatric patients. See CAUTIONS.

NEONATE
- Not recommended.[1]

RENAL IMPAIRMENT ADJUSTMENTS
- None required.[2]

HEPATIC IMPAIRMENT ADJUSTMENTS
- None required.[2]

HEMO/PERITONEAL DIALYSIS
- Hemo/peritoneal dialysis: No information available at this time.
- CAVH: No dosage adjustments required.[2]

MISCELLANEOUS
- Note: provides 1.1 calories/mL of lipid (has soybean oil 100 mg/mL).

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PROPOFOL - REFERENCES

1. Welbanks L, ed. Compendium of Pharmaceuticals and Specialties. 35th ed. Ottawa, ON: Canadian Pharmaceutical Association; 2000.

2. Fulton B, Sorkin EM. Propofol. An overview of its pharmacology and a review of its clinical efficacy in intensive care sedation. Drugs 1995; 50:636-57.

3. Servin F, Desmonts JM, Farinotti E, et al. Pharmacokinetics of propofol administration by continuous infusion in patient with cirrhosis. Anaesthesia 1988; 43(suppl):23-4.

4. Trissel LA, ed. Handbook of injectable drugs. 9th ed. Bethesda, MD: American Society of Hospital Pharmacists; 1996:949-51.

5. Kress JP, Pohlman AS, O'Connor MF, et al. Daily interruption of sedative infusions in critically ill patients undergoing mechanical ventilation. N Engl J Med 2000; 342 :1471-7.

6. Gahart BL, Nazareno AR. eds. Intravenous medications: a handbook for nurses and other allied health personnel. 15th ed. St Louis; MO: Mosby Year Book; 1998:722-7.

7. Critical Care Review; CHEST 126:2; Aug.04

8. UpToDate.com: Status Epilepticus in adults- treatment review; Aug.12/05

9. Otterspoor LC. Et al. Update on the propofol infusion syndrome in ICU management of patients with head injury. Curr Opin Anaesthesiol. 2008; 21(5):544-51