Alert	High alert medication: risk of causing significant patient harm when used in error. Chloral hydrate should not be given by non-medical personnel in non-medical environment. Osmolality is 3285 mOsm/kg of water
Indication	Sedation for painless procedure (e.g. neuroimaging). Sedative/hypnotic for short-term use.
Action	Exact mechanism of sedation is not yet known. Trichloroethanol (TCE) is considered to produce the sedative effect associated with this drug.
Drug Type	Sedative and hypnotic drug with barbiturate-like features.
Trade Name	Chloral Hydrate Mixture 1 g/10 mL, (100 mg/mL) manufacturer: Perrigo Australia
Presentation	Chloral Hydrate Mixture 1 g/10 mL (100 mg/mL) oral liquid, 200 mL
Dosage/Interval	Sedation for painless procedure**:** Term infants: 50 mg/kg/dose (25–75 mg/kg/dose). Preterm infants: 25 mg/kg/dose (25–75 mg/kg/dose). Give the dose 45 minutes before procedure. Repeated doses up to maximum of 100 mg/kg may be used with respiratory monitoring. Short-term sedation: 8 mg/kg/dose q6–8 hourly.
Route	Oral Note: Rectal administration is erratically absorbed and therefore not recommended.
Maximum Daily Dose	100 mg/kg
Preparation/Dilution	Syrup – 100 mg/mL (osmolality is 3285 mOsm/kg of water)
Administration	Oral preparation should be diluted 1:3 with water or administered after feeding to reduce gastric irritation.
Monitoring	Chloral hydrate is well tolerated by most patients with single dose or short-term use. Most common reported adverse effect is mild respiratory depression and bradycardia in former preterm infants.[1,2] Observe for respiratory depression, blood pressure and level of sedation.
Contraindications	Do not use in patients with significant hepatic and/or renal disease. Obstructive sleep apnoea.
Precautions	Reduce dose in hepatic and renal impairment. Avoid prolonged use and abrupt withdrawal thereafter. Administration with other CNS depressants such as opioids, benzodiazepines or barbiturates may produce excessive sedation. Indirect hyperbilirubinaemia may occur after prolong use because TCE and bilirubin compete for hepatic conjugation. Use cautiously in preterm infants because of the risk of respiratory depression.
Drug Interactions	Chloral hydrate may have an additive effect with opioids, barbiturates, benzodiazepines leading to respiratory depression. Chloral hydrate may produce a transient increase in response to warfarin due to displacement of warfarin from its protein binding site. Intravenous furosemide administration after chloral hydrate has been reported to produce diaphoresis, flushing, changes in blood pressure and tachycardia in adults and older children. Chloral hydrate may displace phenytoin from protein binding sites and reduce its rate of elimination.
Adverse Reactions	Mild respiratory depression — ensure adequate monitoring. Gastric irritation with nausea and vomiting. In former premature infants , episodes of bradycardia may occur for up to 24 hours after a dose. Paradoxical excitement may occur. Prolonged administration or acute overdose can cause neurologic, respiratory and myocardial depression; cardiac arrhythmia and bladder atony. Serious adverse events including death/permanent neurologic injury have been reported in

	children in a review of adverse event care reports from the adverse drug reporting system of the Food and Drug Administration, the US Pharmacopoeia, and the results of a survey of paediatric specialists.[9]
Compatibility	Not applicable.
Incompatibility	Not applicable.
Stability	Not applicable.
Storage	Store at room temperature (5–25°C). Preparation is light sensitive; store in a dark container.
Special Comments	Onset of action is approximately 15 minutes with reported half-life of 9 hours.[9] Chloral hydrate has no analgesic properties, excitement may occur in patients with pain. Despite being restricted in some countries (e.g. France) as a result of potential carcinogenicity, the American Academy of Pediatrics has judged the evidence insufficient to avoid single doses of chloral hydrate for this reason alone.[3]
Evidence summary	**Efficacy** Chloral hydrate is effective for sedation for painless procedures[4,5](Level II, Grade C) There are insufficient data to promote the regular use of chloral hydrate as a sedative for neonates undergoing intensive care[6]. (Level III, Grade C). **Safety** Chloral hydrate overdose may produce cardiac arrhythmias including torsades de pointes.[7] Administration of chloral hydrate in former premature infants causes significant post-procedural bradycardia[1] (Level III, Grade C). Prolonged use warrants monitoring of serum bilirubin level[8]. (Level III Grade C). Death/severe permanent neurologic injuries have been reported in children, either alone or in combination with other sedatives.[9] **Pharmacokinetics** Chloral hydrate is rapidly and effectively absorbed via the oral route and is immediately metabolised by liver enzymes (alcohol dehydrogenase) to the active hypnotic metabolite trichloroethanol (TCE). It is eventually excreted in the urine after glucuronidation in the liver. Plasma concentration peaks within 30 minutes to an hour. It is also metabolised to trichloroacetic acid (TCA). Both TCE (8–64 hours) and TCA (days) have long plasma half-lives in neonates and accumulate with repeated doses[8]. (Level III Grade C)
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