

Procedural Sedation / Analgesia / Anaesthesia Chart - Page 1

<p>Diazepam (Valium) Anxiolytic / Sedative</p>	<p>Etomidate (Amidate) Hypnotic / Anesthetic</p>	<p>Fentanyl Citrate (Sublimaze) Narcotic Analgesic</p>
<p>Dose Pediatric: 0.04 – 0.2 mg/kg slow IV. Inject into the tubing of a flowing IV solution as close as possible to the vein avoiding small peripheral veins. Dose Adult: Initial dose of 2mg – maximum dose of 10-20mg over 30 minutes for healthy adult, 5-15mg over 30min for elderly or debilitated patients Titrate to effect</p> <p>Onset of Action: 1 – 3 minutes</p> <p>Duration of Action: 15 – 30 minutes</p> <p>Contraindications: Use with caution in shock states, pregnancy, head injury and respiratory depression. Precaution in renal failure.</p> <p>Adverse Effects: Hypotension, respiratory depression, thrombophlebitis.</p> <p>Reversal Agent: Flumazenil</p> <p>Supplied: 5 mg/mL</p> <p>Range: 0.04 – 0.2 mg/kg</p>	<p>Dose: RSI: 0.3mg/kg PS: 0.1-0.2mg/kg Titrate to effect</p> <p>Close airway observation mandatory</p> <p>Not recommended for those under the age of 10.</p> <p>Onset of Action: Within 1 minute.</p> <p>Duration of Action: Usually 5-15 minutes when an average dose of 0.2mg/kg is used.</p> <p>Contraindications: No airway / breathing support.</p> <p>Adverse Effects: Pain at IV site, clonic muscle movements, apnea, laryngospasm, hiccup, hypotension, arrhythmias, nausea / vomiting.</p> <p>Supplied: 2 mg/mL in 10mL Amps (20mg / amp)</p> <p>Range: 0.1 – 0.3 mg/kg</p>	<p>Dose Pediatric: RSI: 2-5µg/kg (over 3-5 min) Pain: 1-2µg/kg q30-60min prn Dose Adult: RSI 1-3µg/kg slow IV</p> <p>Onset of Action: 1-2 minutes with peak effects in 10 minutes</p> <p>Duration of Action: 30-60 minutes</p> <p>Contraindications: Morphine is preferred in patients receiving MAOIs, myasthenia gravis, caution with increased ICP. Adjust dose in renal failure.</p> <p>Adverse Effects: Respiratory depression, apnea, hypotension, decreased GI motility.</p> <p>Pediatrics: Chest wall rigidity with high dose or rapid administration</p> <p>Drug Interactions: Alcohol or CNS depressants potentiate effects, MAOIs may precipitate hypertensive crisis.</p> <p>Reversal Agent: Naloxone</p> <p>Supplied: 50 µg/mL</p> <p>Range: 1 - 5 µg/kg</p>

RSI = Rapid Sequence Induction PS = Procedural Sedation

Prepared by: W. Kirenko RN(EC) ECNP Chatham-Kent Health Alliance (12/2003)

Procedural Sedation / Analgesia / Anaesthesia Chart - Page 2

<p>Hydromorphone (Dilaudid) Narcotic Analgesic</p>	<p>Ketamine (Ketalar) Cataleptic / Anesthetic</p>	<p>Meperidine (Demerol) Narcotic Analgesic</p>
<p>Dose Pediatric: 0.015 mg/kg IV q4-6h Dose Adult: 2-4mg IV Titrate to effect</p> <p>Onset of Action: 5-10 minutes</p> <p>Duration of Action: 3-5 hours</p> <p>Contraindications: Use with caution in those with elevated ICP or respiratory depression. Morphine is preferred in patients receiving MAOIs. Reduce dose in renal and hepatic failure.</p> <p>Adverse Effects: Respiratory depression, hypotension, decreased GI motility.</p> <p>Drug Interactions: Alcohol or CNS depressants, and MAOIs potentiate effects.</p> <p>Reversal Agent: Naloxone</p> <p>Supplied: 2 mg/mL</p> <p>Range: 0.015 mg/kg</p>	<p>Dose: RSI & PS: 1-4mg/kg IV (over 1 min) PS: 2-5mg/kg IM</p> <p>Onset of Action: 30 – 60 seconds IV 3 – 5 minute IM</p> <p>Duration of Action: 15 minutes</p> <p>Close airway observation mandatory</p> <p>Recovery Time: 1 – 2 hours</p> <p>Contraindications: Avoid use in patients with increased ICP, HTN, active URTI and eye injury.</p> <p>Adverse Effects: Hypertension, tachycardia, vivid dreams, nausea / vomiting, laryngospasm, increased salivation. (Atropine 0.02mg/kg IM/IV can be used to diminish hypersalivation). Vivid dreams in older children/adults could attenuate with pre-post treatment with benzodiazepine i.e. midazolam.</p> <p>Note: 50 mg/ml concentrate for IM use available in PGC ICU</p> <p>Supplied: <u>NOTE IV Use 10 mg/mL</u></p> <p>Range: 1 – 4 mg/kg IV</p>	<p>Dose Pediatric: 0.5-1.5 mg/kg IV q3-4h 1-1.5mg/kg/dose MAX 100mg IM</p> <p>Dose Adult: 0.5 – 1 mg/kg IV 50-150mg IM q3-4h prn Titrate to effect</p> <p>Onset of Action: IV use 5 minutes IM use 10-15 min</p> <p>Duration of Action: 2 – 4 hours</p> <p>Contraindication: Completely contraindicated in patients receiving MAOIs. Discourage use in those with renal failure due to increased risk of CNS toxicity.</p> <p>Adverse Effects: Hypotension, respiratory depression, decreased GI motility.</p> <p>Reversal Agent: Naloxone</p> <p>Supplied: <u>NOTE Using 100 mg/mL</u></p> <p>Range: 0.5 – 1.5 mg/kg</p>

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Procedural Sedation / Analgesia / Anaesthesia Chart - Page 3

Midazolam (Versed) Anxiolytic / Sedative	Morphine Sulfate Narcotic Analgesic	Propofol (Diprivan) Short Acting General Anesthetic Agent
<p>Dose Pediatric: RSI: 0.05 – 0.1mg/kg PS: 0.02 – 0.04mg/kg</p> <p>Dose Adult: RSI: 0.02 - 0.1mg/kg PS: 0.02 – 0.04mg/kg</p> <p>Dose Oral: PS: 0.5 mg/kg (Efficacy is quite variable)</p> <p>Onset of Action: 2 minutes IV 30 minutes oral</p> <p>Duration of Action: 20 – 60 minutes</p> <p>Contraindications: Glaucoma, shock, depressed vital signs, CHF, COPD, concomitant use of barbiturates, alcohol, narcotics, or other CNS depressants. Adjust dose in renal failure.</p> <p>Adverse Effects: Respiratory depression, hypotension or hypotension, bradycardia or tachycardia.</p> <p>Reversal Agent: Flumazenil</p> <p>Supplied: 1 mg/mL OR 5 mg/mL</p>	<p>Dose Pediatric: 0.1-0.2 mg/kg IV q2-4h prn</p> <p>Dose Adult: 5-15mg IV for healthy adults, 2.5mg in the elderly/debililitated q2-6h prn</p> <p>Titrate to effect</p> <p>Onset of Action: 5 – 10 minutes</p> <p>Duration of Action: 2 – 5 hours</p> <p>Contraindications: Morphine is the preferred opioid in presence of MAOI but dose should be reduced.</p> <p>Adverse Effects: Respiratory depression (maximum 7 minutes post IV dose), hypotension, depressed GI motility, constipation. Reduce dosage in those with renal or hepatic impairment.</p> <p>Reversal Agent: Naloxone</p> <p>Supplied: <u>NOTE Using 10 mg/mL</u></p>	<p>Dose: RSI: 2 - 2.5mg/kg IV PS: 0.5 – 1.0mg/kg initial dose IV then, 0.05 – 0.1mg/kg IV boluses q 30 seconds to desired effect. Infuse undiluted.</p> <p>Onset of Action: 10 – 50 seconds</p> <p>Close airway observation mandatory</p> <p>Duration of Action: 3 – 10 minutes</p> <p>Recovery: 5 – 22 minutes</p> <p>Contraindications: Caution with history of allergy to soybean oil or egg.</p> <p>Adverse Effects: Hypotension, bradycardia, arrhythmias, apnea, airway obstruction.</p> <p>Supplied: 10 mg/mL</p>
<p>Range: 0.02 - 0.1 mg/kg</p>	<p>Range: 0.1 – 0.2 mg/kg</p>	<p>Range: 0.05 – 2.5 mg/kg</p>

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Procedural Sedation / Analgesia / Anesthesia Chart - Page 4

<p>Rocuronium (Zemuron) Non-Depolarizing Neuromuscular Blocker</p> <p>Dose: RSI 1mg/kg IV</p> <p>Note: Has NO effect on consciousness or pain.</p> <p>Onset of Action: 30 – 60 seconds</p> <p>Duration of Action: 30 - 60 minutes when used with balanced anesthesia.</p> <p>Contraindications: No airway / breathing support, hepatic insufficiency, myasthenia gravis, and electrolyte imbalance.</p> <p>Adverse Effects: Bradycardia or tachycardia, hypertension or hypotension, bronchospasm. May precipitate when in contact with other drugs, flush line before / after use.</p> <p>Supplied: 10 mg/mL</p> <p>Range: 0.6 – 1.2 mg/kg</p>	<p>Succinylcholine (Quelicin) Depolarizing Skeletal Muscle Relaxer</p> <p>Dose: RSI: 1 – 2mg/kg IV</p> <p>Pre-treat those <10 years old with atropine 0.02mg/kg to avoid bradycardia</p> <p>Note: Has NO effect on consciousness or pain.</p> <p>Onset of Action: 30 – 60 seconds</p> <p>Duration of Action: 3 – 10 minutes</p> <p>Any sudden arrest following use is hyperkalemia until proven otherwise.</p> <p>Contraindications: Malignant hyperthermia, known hyperkalemia, glaucoma, increased ICP, eye injuries, muscular dystrophy, CVA with paresis within 12 months, upper motor neuron lesion, severe skeletal muscle trauma, third degree burns (safe in 1st 3 days and then after burns are completely healed).</p> <p>Adverse Effects: hyperkalemia, arrhythmias, myalgia, increased intraocular pressure, increased intracranial pressure, skeletal muscle contractions, myoglobinuria, increased intragastric pressure.</p> <p>Supplied: 20 mg/mL</p> <p>Range: 0.3 - 2 mg/kg</p>
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Anaesthesia Maintenance Drugs Chart - Page 5

Pancuronium Bromide (Pavulon)	Rocuronium (Zemuron)
<p align="center">Non-depolarizing Neuromuscular Blocker</p> <p>Dose: Maintenance: 0.1-0.2mg/kg slow IV</p> <p>Note: Has NO effect on consciousness or pain</p> <p>Onset of Action: 1.5 - 2 minutes</p> <p>Duration of Action: 45 – 60 minutes</p> <p>Contraindications: No airway / breathing support, tricyclic antidepressant use, neuromuscular diseases (e.g. myasthenia gravis) and asthma. Duration of action prolonged in those with renal disease.</p> <p>Adverse Reactions: Transient hypotension, tachycardia, dysrhythmias, increased BP, excessive salivation, pain / burning at IV site.</p> <p>Supplied: 2 mg/mL</p>	<p align="center">Non-Depolarizing Neuromuscular Blocker</p> <p>Dose: Maintenance 0.3 - 0.6 mg/kg IV</p> <p>Note: Has NO effect on consciousness or pain.</p> <p>Onset of Action: 1 – 2 minutes</p> <p>Duration of Action: 20 - 40 minutes</p> <p>Contraindications: No airway / breathing support, hepatic insufficiency, myasthenia gravis, and electrolyte imbalance.</p> <p>Adverse Effects: Bradycardia or tachycardia, hypertension or hypotension, bronchospasm. May precipitate when in contact with other drugs, flush line before / after use.</p> <p>Supplied: 10 mg/mL</p>
<p align="center">Range: 0.1 – 0.2 mg/kg</p>	<p align="center">Range: 0.3 - 0.6 mg/kg</p>

Procedural Sedation Reversal Agents - Page 6

<p align="center">Flumazenil (Anexate)</p>	<p align="center">Naloxone (Narcan)</p>
<p align="center">Benzodiazepine Antagonist</p> <p>Used to reverse effects of benzodiazepines</p> <p>Dose Pediatric: 0.01mg/kg IV (maximum 0.2mg) then 0.005 – 0.01mg/kg IV (maximum 0.2mg) q 60 seconds to a maximum of 1mg. May be repeated in 20 minutes up to a maximum of 3mg/hr</p> <p>Dose Adult: 0.2mg IV over 15 seconds then 0.1mg q 60 seconds to a maximum of 1mg (usual 0.3 – 0.6mg).</p> <p>Benzodiazepine Overdose: 0.3mg IV over 30 seconds, then 0.3mg IV over 30 seconds q 60 seconds to a maximum of 2mg.</p> <p>Onset: 1 – 3 minutes Peak: 6 – 10 minutes Duration: < 60 minutes</p> <p>Note: Duration of action is shorter than that of the drugs it reverses, repeat doses may be needed and patients should continue to be monitored. Monitor closely for rebound respiratory depression.</p> <p>Adverse Effects: Seizures, cardiac arrhythmias, hypotension, hypertension, bradycardia.</p> <p>Caution: Use caution in those with epilepsy, individuals on long term benzodiazepines, mixed overdoses where there has been co-ingestion of agents that decrease the seizure threshold, and those with cardiac arrhythmias.</p> <p>Supplied: 0.1 mg/mL</p>	<p align="center">Opioid Reversal</p> <p>Used to reverse the effects of opioids</p> <p>Dose Pediatric: < 5 years / < 20kg: 0.1mg/kg/dose IV q 2-3 minutes PRN ≥ 5 years / > 20kg: 2mg/dose IV q 2-3 minutes PRN</p> <p>Dose Adult: Post Opiate Depression: 0.05 – 0.1mg IV q 2 – 3 minutes Overdose: 0.4 – 2mg IV q 2 – 3 minutes. If no response after 10mg total, may indicate that condition will not respond to naloxone. Titrate to effect</p> <p>Onset: < 2 minutes Peak: 5 – 15 minutes Duration: 20 – 60 minutes</p> <p>Note: Since the duration of action is shorter than that of the drugs it reverses, repeat doses may be needed and patients should continue to be monitored. Monitor closely for rebound respiratory depression.</p> <p>Adverse Effects: Pulmonary edema, hypertension or hypotension, ventricular ectopic rhythms.</p> <p>Supplied: 0.02 mg/mL 0.4 mg/mL 1.0 mg/mL</p> <p align="right"><u>NOTE CONCENTRATION</u></p>

Procedural Sedation Adjuncts - Page 7

<p>Atropine</p> <p>Anticholinergic</p> <p>Used to diminish hypersalivation when using ketamine (Ketalar)</p> <p>Vagolytic, prevents bradycardia and reduces oral secretions, may increase heart rate.</p> <p>In infants and young children, bradycardia and transient asystole may occur after one dose of succinylcholine (Anectine). Patients below age 8 years should be pre-treated with Atropine 0.02mg/kg to reduce the occurrence of bradyarrhythmias.</p> <p>Dose: 0.01 – 0.02mg/kg IM / IV</p> <p>Supplied: <u>0.4mg/mL</u></p> <p><u>NOTE CONCENTRATION</u></p>	<p>Lidocaine (Xylocaine)</p> <p>Antiarrhythmic</p> <p>Blunts ICP spike, cough reflex, and cardiovascular effects of intubation, controls ventricular dysrhythmias</p> <p>Dose: 1 - 2mg/kg IV (max 100mg) 1-2 minutes prior to intubation / suctioning.</p> <p>Adverse Effects: Hypotension, bradyarrhythmias, heart block, decreased cardiac output, disorientation, agitation, seizures.</p> <p>Caution: Use caution and decrease dose in those with hepatic or renal failure.</p> <p>Supplied: 10mg/mL</p>
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