

## Provincial High-Alert Medication List (EMS Reference Document - H03.2)

**Abbreviation Legend:**

IV = intravenous; subcut = subcutaneous; IO = intraosseous; IM = intramuscular; PCA = patient controlled analgesia

Drug Classification	High Alert Medications	Route	Specific Instructions
Antiarrhythmic Agents	amiodarone	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	digoxin	Infusion (IV & IO)	All IV/IO intermittent infusions.
Antiarrhythmic Agents	diltiazem	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	ibutilide	Infusion (IV & IO)	All IV/IO intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	lidocaine	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	procainamide	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Antiarrhythmic Agents	verapamil	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Anticoagulants	argatroban	IV	All IV continuous and intermittent infusions.
Anticoagulants	bivalirudin	IV	All IV continuous and intermittent infusions.
Anticoagulants	dalteparin	IV, Subcut	For anticoagulation during hemodialysis and all doses when prepared in patient care area. EXCEPTION: when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	danaparoid	IV, Subcut	All IV continuous infusions and all doses when prepared in patient care area. EXCEPTION: IV direct, IV intermittent infusion and subcut when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	enoxaparin	IV, Subcut	All doses when prepared in patient care area. EXCEPTION: IV intermittent and subcut when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	eptifibatide	IV	All IV continuous infusions and all doses when prepared in patient care area. EXCEPTION: IV direct when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	fondaparinux	IV, Subcut	All doses when prepared in patient care area. EXCEPTION: IV intermittent and subcut when prepared by pharmacy or in a prefilled syringe.
Anticoagulants	heparin	IV, Subcut	All IV continuous and intermittent infusions, IV direct or subcut when prepared in patient care area. EXCEPTION: IV intermittent and subcut when prepared by pharmacy or in a 5000 unit prefilled syringe/vial or <b>when used for CVAD maintenance</b> .
Anticoagulants	tinzaparin	IV, Subcut	For anticoagulation during hemodialysis and all doses when prepared in patient care area. EXCEPTION: when prepared by pharmacy or in a prefilled syringe.
Anticonvulsant agents	fosphenytoin	Pediatrics Only: Infusion (IV & IO)	Loading doses only.
Anticonvulsant agents	PENTobarbital	Pediatrics Only: All routes	
Anticonvulsant agents	PHENobarbital	Pediatrics Only: All routes	
Anticonvulsant agents	Phenytoin	Pediatrics Only: Infusion (IV & IO)	Loading doses only.
Antidotes	acetylcysteine	IV	<b>Special ISMP Alert: Infusion Errors Leading to Fatal Overdoses of N-Acetylcysteine.</b> <a href="https://ismpcanada.ca/wp-content/uploads/ISMPCSB2022-i8-NAC-Alert-Infusion-Errors.pdf">https://ismpcanada.ca/wp-content/uploads/ISMPCSB2022-i8-NAC-Alert-Infusion-Errors.pdf</a>
Beta Blockers	propranolol	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Beta Blockers	esmolol	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Beta Blockers	labetalol	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.

Beta Blockers	metoprolol	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures.
Cytotoxic Parenteral Agents	Refer to the WRHA Cytotoxic Hazardous Medication list	All parenteral routes	<a href="https://home.wrha.mb.ca/old/prog/pharmacy/files/DrugList_20160201.pdf">https://home.wrha.mb.ca/old/prog/pharmacy/files/DrugList_20160201.pdf</a>
Electrolytes	calcium, all salts	Infusion (IV)	All IV continuous and intermittent infusions. Concentrated formulations include: - calcium gluconate 100 mg/mL (10%) (equals 9.3 mg Ca <sup>++</sup> /mL) - calcium chloride 100 mg/mL (10%) (equals 27.3 mg Ca <sup>++</sup> /mL) <b>If Pharmacy or Nurse prepared:</b> all concentrations are High-Alert. EXCEPTION: calcium chloride when administered in emergency situations, defer to SDO-specific procedures.
Electrolytes	potassium, all salts	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. Concentrated formulations include: - potassium chloride 2 mmol K <sup>+</sup> /mL - potassium phosphate 4.4 mmol K <sup>+</sup> /mL (equals 3 mmol phosphate/mL) - potassium acetate 4 mmol K <sup>+</sup> /mL (equals 4 mmol acetate/mL) - potassium chloride 20 mmol K <sup>+</sup> /100 mL minibag <b>If Pharmacy prepared:</b> concentration of final product is greater than or equal to 80 mmol/L of K <sup>+</sup> are High-Alert. <b>If Nurse prepared:</b> all concentrations are High-Alert.
Electrolytes	sodium, all salts	IV (all salts)	All IV/IO continuous and intermittent infusions and IV Direct. Concentrated formulations include: - sodium acetate 4 mmol/mL - sodium bicarbonate 1 mmol/mL - sodium chloride 4 mmol/mL - sodium phosphate 4 mmol Na <sup>+</sup> /mL (equals 3 mmol/mL phosphate) - sodium chloride 3% (contains 0.513 mmol Na <sup>+</sup> /mL) <b>If Pharmacy or Nurse prepared:</b> concentration of final product is greater than 0.9% sodium chloride (0.154 mmol/mL of Na <sup>+</sup> ) are High-Alert. EXCEPTION: sodium bicarbonate when administered in emergency situations, defer to SDO-specific procedures.
Electrolytes	dextrose	IV Continuous infusion	IV continuous when concentration of dextrose is greater than 20%. (NOTE: IV direct is not High-Alert).
Electrolytes	magnesium sulfate	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions where magnesium sulfate concentrations greater than 20% or 200 mg/mL (equivalent to 20 mg/mL or 0.8 mmol/mL of Mg <sup>++</sup> ).
Insulin		All routes	All IV/IO continuous and intermittent infusions, IV direct and all subcut and intermittent doses. EXCEPTION: self-administered.
MISCELLANEOUS	alteplase	IV	All IV/IO continuous and intermittent infusions and IV direct. EXCEPTION: when used for CVAD maintenance.
MISCELLANEOUS	oxytocin	All routes	When administered for induction/augmentation of labour.
MISCELLANEOUS	tenecteplase	IV	All IV/IO continuous and intermittent infusions and IV direct.
MISCELLANEOUS	Total Parenteral Nutrition	IV	Exclude lipids being used outside of TPN applications.
Opioids	fentaNYL	All routes	Include intranasal, patches, continuous and intermittent infusions, PCA and IV direct and subcut EXCEPTION: IV direct/subcut/IM from ampoules/vials with less than or equal to 100 mcg per container.
Opioids	HYDRomorphone	IV, Subcut Pediatrics: all routes	Adult: All IV/IO continuous and intermittent infusions, IV direct and subcut. Pediatric: All routes including oral, IM, subcut and PCA. EXCEPTION: IV direct/subcut/IM from ampoules/vials with less than or equal to 2 mg/container.
Opioids	methadone	All routes	
Opioids	morphine	IV, Subcut, oral liquid, Pediatrics: all routes	Adult: All IV/IO continuous and intermittent infusions, IV direct and subcut. Pediatric: All routes including IV/IO, oral, IM, subcut and PCA. EXCEPTION: oral liquids less than 5 mg/mL. EXCEPTION: IV direct/subcut/IM from ampoules/vials with less than or equal to 15 mg/container for adults or less than or equal to 2 mg/container for pediatrics.
Opioids	remifentanil	All routes	
Opioids	SUFentanil	All routes	
Medications given by the neuraxial route	All	Neuraxial	Single dose and continuous infusions delivered via the spinal, epidural or spinal-epidural route. <b>Special ISMP Alert: Tranexamic Acid</b> <a href="https://ismpanada.ca/wp-content/uploads/ISMPCSB2022-i6-Tranexamic-Acid-Spinal-Anesthesia.pdf">https://ismpanada.ca/wp-content/uploads/ISMPCSB2022-i6-Tranexamic-Acid-Spinal-Anesthesia.pdf</a>
Medications given as peripheral wound infusions	All local anesthesia medications (e.g. bupivacaine, ropivacaine, lidocaine)	Continuous infusions including but not limited to the following: peripheral nerve wound, pleural, paravertebral	

Neuromuscular blocking agents	cisatracurium	All routes	
Neuromuscular blocking agents	rocuronium	All routes	
Neuromuscular blocking agents	succinylcholine	All routes	
Sedation Agents	chloral hydrate	All routes	Dose greater than 25 mg/kg/dose or 500 mg/dose.
Sedation Agents	diazepam	All routes pediatric	
Sedation Agents	ketamine	Infusion (IV & IO), Intranasal, Pediatrics: all routes	Continuous infusion and intermittent high potency in concentrations in greater than 10 mg/mL. All routes pediatric including oral, nasal, IM and subcut.
Sedation Agents	LORazepam	Infusion (IV, subcut & IO), Pediatrics: all routes	Continuous infusion only All routes pediatric including oral, IM and subcut.
Sedation Agents	midazolam**	Infusion (IV, subcut & IO) Pediatrics: all routes	Continuous infusion only All routes pediatric including oral, nasal, IM and subcut.
Sedation Agents	propofol**	Infusion (IV & IO), Pediatrics: all routes	All continuous infusion only.
Vasodilators/Antihypertensives	enalaprilat	IV	All IV routes.
Vasodilators/Antihypertensives	hydrALAZINE	IV	All IV routes.
Vasodilators/Antihypertensives	nitroglycerin	IV	All IV routes.
Vasodilators/Antihypertensives	nitroprusside	IV	All IV routes.
Vasopressors and Inotropic agents	DOBUtamine	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.
Vasopressors and Inotropic agents	DOPamine**	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.
Vasopressors and Inotropic agents	EPINEPHrine**	IV	All IV routes.
Vasopressors and Inotropic agents	isoproterenol**	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.
Vasopressors and Inotropic agents	norepinephrine**	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.
Vasopressors and Inotropic agents	phenylephrine**	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions. EXCEPTION: when prepared by pharmacy or in a pre-filled syringe.
Vasopressors and Inotropic agents	milrinone	IV	All IV routes.
Vasopressors and Inotropic agents	vasopressin	Infusion (IV & IO)	All IV/IO continuous and intermittent infusions.

**NOTES:**

**\*\* Independent double-checks are not required when titrating continuous infusions as per prescriber/physician orders of vasopressors, midazolam, and propofol in Adult ICUs, PACUs, Emergency/Urgent Care Departments and with Critical Care Transport Teams.**

**EXCEPTION: when administered in emergency situations, defer to SDO-specific procedures**

Health Care Practitioners are to follow SDO-specific procedures, such as a Code Blue policy, for the preparation and administration of HAM in emergency situations.