

**Ventura County Medical Center
High Alert Medications
2010**

Medication Drug Class	Selection/ Procurement	Storage	Ordering Transcribing	Preparing/ Monitoring	Administration	Monitoring
Chemotherapy Drugs (all)	Procured by the pharmacy department. Segregate look-alike/sound-alike chemotherapy drugs.	Stored only in the pharmacy department (Infusion Center)	Use approved pre-printed orders for ordering chemotherapy. Patient's height, weight and BSA available. Do not use abbreviations.	Trained personnel to prepare chemo drugs. Independent check of maximum dosage using patient's BSA.	Independent check of order vs final product. Free flow protection on IV pumps. Order matches nursing flow sheet.	Determine number of interventions made to clarify max dosing. Verify labs prior to treatment. Documented regimen cycles to be completed.
Potassium Chloride/ Potassium Phosphate Injection	Procured by pharmacy department and locked in the department. Pre-mixed solutions purchases.	Pre-mixed (diluted) KCl available on nursing floors. Concentrated K products removed from nursing areas. Concentrated K products locked in the pharmacy.	Do not order as bolus. Standardize K-rider doses. Do not exceed 10 mEq/hr on med/surg areas. Pediatrics 0.5 mEq/kg/hr – with 10 mEq/hr maximum.	Only pre-mixed solutions used. Pre-mixed K solutions available in the night locker when pharmacy is closed.	Must be administered via pump.	Intervention for orders exceeding a rate over 20 mEq/hr. Orders for more than 40 mEq K riders.
Hypertonic sodium chloride solutions	Only the 3% commercially available hypertonic sodium chloride is purchased.	Stored only in the pharmacy.	Orders must specify rate, duration and frequency of sodium monitoring.	Only 3% NaCl available. Only pharmacist prepares concentrated saline if commercial product not available.	Independent check with another health provider with respect to concentration, rate and duration.	Stored only in the pharmacy. Locked in the dialysis room (if any). Not found as floor stock on nursing stations.
Insulin	Purchased by the pharmacy department.	Stored in automated dispensing	Do not use the abbreviation "U" when ordering	Use only U-100 insulin. Do not draw insulin in TB	Two independent checks on the dose being administered	Monitor patients requiring

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	Segregate sound-alike insulin products.	machines. Do not place open vial back into carton.	insulin. If a telephone order is taken repeat back order (i.e. if 16 Units orders the nurse repeats as one-six units). Do not place slash when ordering NPH and regular insulin to be given together.	syringes. Do not give NPH or Mixtard® insulin in an IV solutions.	including pumps and bolus doses	Dextrose 50% and patients with glucose levels < 50 mg/dl. Monitor storage areas in patient care areas. Monitor use of "U" in orders for insulin.
Neuromuscular Blocking Agents	Purchased from wholesaler by pharmacy. Stored in OR, ICU, ER and L&D.	Stored in special intubation kits in the ICU/ER and L&D. Expiration of 14 days for all product stored out of the refrigerator (OR).	Do not refer to neuromuscular blockers as "relaxants"	Standardize drip concentrations.	Stipulate neuromuscular blockers are discontinued when patient is extubated and removed from the ventilator.	Drugs are stored properly. Kept in ICU/ER/L&D in intubation kits. Monitor use of reversal agents.
Opiates and Narcotics (i.e., Morphine and Hydromorphone)	Purchased from wholesaler by pharmacy.	Morphine and hydromorphone are stored separately on the nursing stations.	The abbreviation "MS" not accepted. For PCA orders, preprinted orders are utilized.	Pharmacy prepares Morphine PCA and Hydromorphone PCAs. Monitor patient on PCA per policy. Standardize concentration.	Independent double check for all PCA setting by two healthcare providers. Naloxone available in all automated dispensing machines and crash carts.	Vital signs recorded. Monitor number of patient requiring naloxone. Audit programming errors
Heparin	Purchased by pharmacy in single dose vials. Multi	Stored away from insulin and other look alike	Preprinted weight based order form used for heparin	Standard concentration of heparin used	Use smart pumps to program heparin infusion. Double check	Monitor PTTs > 100 seconds, number of patient requiring

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	dose vials of heparin locked in the pharmacy.	vials that may be mistaken for heparin. Maximum concentration available 5000 units/ml. Preservative free heparin stored in NICU only.	orders. The use of "U" for units is prohibited. Patient's weight available.	(25,000 units/500 ml) Only concentration permitted for treatment and prophylaxis. A 1000 Units/500ml solution available for arterial lines in ER, ICU, OR.	setting of infusion after each rate change. Use free flow protected pumps.	protamine. Download data from smart pumps for correct infusion rates. Monitor patient that may be on LMW heparins concomitantly.
Calcium Gluconate Calcium Chloride	Calcium salts ordered by the pharmacy. Calcium chloride is procured in prefilled syringes. Calcium gluconate procured in the vial form.	Calcium chloride is stored in adult and pediatric crash carts. Calcium Gluconate is available in the pharmacy, ICU and ER departments. Available in L&D in toxemia kits.	Specify the salt form of calcium. Order in milligram of calcium gluconate or calcium chloride. Do not order calcium in milligrams of elemental calcium. Do not order as "IM" always give "IV."	Dilute 1:1 with normal saline for all calcium gluconate orders in NICU.	Certain nursing area permitted to give calcium as IV push.	Monitor calcium – phosphate interactions in TPN solutions. Monitor any reports of tissue necrosis due to calcium administration.
Magnesium Sulfate	Purchased in the 1 gm single dose vials and in the 5gm and 10 gm vials which are stored in the pharmacy only. 5gm and 10 gm vials are locked in pharmacy.	Certain nursing station only stock the 1 gm vials (i.e., ICU/Tele, ER, L&D)	The abbreviations such as MgSO4 or Mg are not permitted, confused with morphine. Orders standardized to order grams of magnesium.	Standardized magnesium concentration available. Nurses are not permitted to prepare magnesium Ivs.	Use smart pumps to program infusion of magnesium.	Use of MgSO4 or Mg when ordering magnesium. Orders for magnesium other than in grams.
Parenteral Nutrition (PN) Solutions	Purchased by pharmacy buyer	Ingredients stored in pharmacy sections.	NICU TPN orders are computer generated signed by the physician or NNP.	Pharmacist check all manual additives before injection into bag.	Nursing comparison of TPN label against original order.	Monitor blood glucose for hypo or hyperglycemia. Monitor electrolytes.

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Enoxaparin (Lovenox®) Fondaparinux (Arixtra®)	Purchased by pharmacy in single dose pre-filled syringes.	Pre filled syringes are stored in the pharmacy and in the automated dispensing machines.	Physician orders must be double checked by the pharmacy when weight based (i.e., treatment of DVT)	Standard pre-filled syringes of 30, 40, 60, 80, 100, 120, 150 available on the VCMC/SPH formulary. Monitor CBC with platelets before and during therapy. Monitor serum creatinine.	Doses that are not commercially available must be double checked by another person. (i.e. Lovenox® 85 mg)	Monitor platelets, Hgb, Hct routinely. Adjust dose for renal impairment. Monitor for bleeding.
Direct Thrombin Inhibitors (DBIs) Argatroban Lepirudine	Purchased by the pharmacy department in single dose vials. Argatroban is available in 250 mg vials. Lepirudin is available in 100 mg vials.	Stored in the pharmacy only. Not to be stored in any other area of the hospital. Not to be stored in the automated dispensing cabinets.	Both drugs will require the physician to use pre-printed order form for prescribing. Pharmacy will require the patients weight and creatinine value before entering orders for DBIs	Both argatroban and lepirudin have standard order sets programmed in MediTech, the pharmacist uses order sets to enter argatroban and lepirudin. Monitoring requires CBC, CMP, patient weights	Both argatroban and lepirudin must be infused via a pump and Guardrails must be used. A second nurse independently confirms the pump setting prior to the start of the infusion.	Monitor aPTT, PT, Platelets, Hgb, Hct routinely. Monitor renal function for lepirudin and adjust dose. Dosage adjustment required for argatroban in patients with hepatic impairment. Monitor PT when warfarin added to argatroban.

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