SCal Regional High-Alert Medication Policy
MEDICAL CENTER ADMINISTRATIVE POLICIES & PROCEDURES

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TITLE	Regional High-Alert Medication Safety Practices	Effective Date Revision Date	2006 12/14
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I. Introduction/Purpose

Regional high-alert medications are defined as those drugs which are involved in a higher percentage of medication incidents and/or sentinel events, or that carry an increased risk for error or other adverse outcomes. These medications are identified from KP facility data, literature, and regulatory agency standards.

A. The purpose of this policy is to standardize medication safety practices and to serve as the minimum standard for SCal Regional High-Alert Medications. In order to maximize the safety of all the medication processes associated with these medications, each high-alert medication has specific medication safety practices required when they are administered. Not all medication safety practices are required for each high-alert medication. Refer to the Procedure section of this document for specific high-alert medications and the required medication safety practices.

II. Policy

A. The Southern California Regional Pharmacy/Nursing Committee is responsible for the creation and maintenance of the Regional High-Alert Medication List. The Regional High-Alert Medication List established by this policy is the sole list and is standardized throughout the Southern California Region of Kaiser Permanente. Requests for changes to the Regional High-Alert Medication List shall be forwarded for consideration to the Regional Pharmacy/Nursing Committee. The work of the Regional Pharmacy/Nursing Committee will be referred to the Regional Pharmacy and Therapeutics Committee for final approval. See attached algorithm.

B. The medication safety practices, special processes and interventions required for the Southern California Regional High-Alert Medication List must be adopted and implemented in all the patient care areas/units of KP facilities.

C. All registry/travelers are required to complete the High Alert Medication Training prior to start of assignment.
- Registry/travelers will <u>not</u> administer or assist in the administration of any Intrathecal Medications.

D. Medications used during medical emergencies (e.g. immediate life threatening event) are exempt from the High-Alert Medication Safety Practices in this policy.

E. The High-Alert Medication safety practices are special safeguards that may be applicable to any step in the medication administration process. These steps include but are not limited to:
1. Prescribing
2. Prescription order communications
3. Product labeling
4. Packaging and nomenclature

5. Compounding
6. Dispensing
7. Distribution
8. Administration
9. Education
10. Monitoring
11. Use

F. Orders for High-Alert Medications will include at a minimum:
1. Patient name and medical record number
2. Date and time the order is written or placed in KP HealthConnect
3. Drug name (generic), dose, route, and date of administration for each drug
4. Rate and/or duration of administration (if applicable)

G. The following will be available on the patient's medical record:
1. All elements used to calculate the dose (e.g. height, weight used for medication dosing during that encounter, and/or BSA, if applicable)
2. Allergies
3. Informed consent (if applicable)

H. All High-Alert Medications will be documented on Medication Administration Record/Anesthesia record/Ambulatory medical record, or other part of the medical record where drug administration is documented.

III. Definitions: New High-Alert Medication Safety Practices

A. Qualified Health Care Practitioner: individuals who are qualified to perform double checks or independent double checks within the context of their normal responsibilities and scope of practice. Qualified health care practitioners include physicians, physician assistants, nurse practitioners, certified nurse midwives, registered nurses, and pharmacists. Licensed vocational nurses may participate in double checks in specific circumstances as described in the Procedures Section below.

B. Independent Double Check is defined as a check of the factors listed below. It is performed independently by two qualified health care practitioners (MD/RN/Pharmacist), against the current medication order, before each high-alert medication is administered.
1. These checks must be documented on the Medication Administration Record/Anesthesia record/Ambulatory medical record or other part of the medical record where drug administration is documented.
2. Refer to the Procedure section of this document to determine when an Independent Double Check is required prior to the administration of a specific high-alert medication.

The factors to be verified during the independent double check must include:
   a. Right patient identification using two identifiers – patient name, medical record number.
   b. Current patient weight (for weight-based drugs) or body surface area (BSA) for BSA-dosed drugs
   c. Right Drug (verified against the current physician order)
   d. Right Dose or rate
   e. Right route of administration
   f. Right time of administration
   g. Pump settings

   a. For patients receiving drugs programmed on the IV pump using the drug library, verify the correct drug, concentration, correct entry of patient weight (for weight-based drugs) or body

surface area (for BSA dosed drugs), correct dose/rate or duration, and line attachment. The pump settings must be double checked against the current medication order.

b. For patients receiving drugs on the IV pump that are not built in the drug library, verify the correct drug, concentration, correct entry of patient weight (for weight-based drugs) or body surface area (BSA) for BSA dosed drugs, correct dose/rate (using mathematic calculations with appropriate factors) or duration, and line attachment.

- Mathematical calculations of the dose and rate for drugs administered I.V. will be performed independently by two qualified health care practitioners when:
  b. drugs are not in the I.V. pump drug library;
  c. pumps without "Smart Technology" or drug libraries are used to administer drugs
  d. drugs are ordered during KP HealthConnect downtimes;
  e. drugs are removed on override from automated drug dispensing devices (eg. Pyxis) in the absence of a medication order in KP HealthConnect.

- These checks must be documented on the Medication Administration Record/Anesthesia record/Ambulatory medical record, or other part of the medical record where drug administration is documented.
- Refer to the Procedure section of this document to determine when Double Checks are required for specific high-alert medications.

B. Time Out

Time Out is defined as the period of time immediately before initiating a high-alert medication administration /procedure, when two qualified health care practitioners verify the factors listed below, at the patient's side in the location where the medication administration /procedure will be performed. The Time Out must be documented on the medical record at the time of occurrence. Refer to the Procedure section of this document to determine when a Time Out is required prior to the administration of a specific high-alert medication.

The factors to be verified during the Time Out must include:

1. Availability of any special equipment or special requirements for administration of the medication (e.g. infusion devices), if applicable. For patients with I.V. Pumps – verify the setting and rate of infusion
2. Correct patient identity – patient name and medical record number.
3. Correct side and site - verify appropriateness and adequacy of IV access.
4. Agreement on the medication administration/procedure to be done with the patient - discuss with the patient/family the medication and administration procedure.
5. Correct patient position for epidural and intrathecal medication administration.

C. Pharmacy Pause

A Pharmacy Pause is defined as checks performed independently by two pharmacists or a pharmacist and a pharmacy technician, before a specified high-alert medication is dispensed from the pharmacy.

The factors to be verified during the Pharmacy Pause must include:

1. Right patient identification using two identifiers – patient name, medical record number.
2. Right Drug (verified against original physician order)

D. Hand-off

Hand-off is defined as an interactive process of passing patient specific information from one caregiver to another for the purpose of ensuring the continuity and safety of the patient's care.

Hand-off occurs when a nurse transfers responsibility for the patient for the remainder of the workday – e.g. change of shift. Hand-off does not include coverage for breaks or meal periods.

IV. Procedures

A. Vinca Alkaloids: VinCRIStine (Oncovin®), VinBLAStine (Velban®), Vinorelbine (Navelbine®)
Special processes to maximize safety

1. All doses of vinCRIStine and vinBLAStine shall be prepared and dispensed in 25 mL mini-bags of 0.9% Sodium Chloride for Injection.
2. Vinorelbine shall be prepared and dispensed in a maximum of 50 mL mini-bags of 0.9% Sodium Chloride for Injection.
3. The syringe or minibag shall be labeled with the warnings:
    1. "For Intravenous Use Only – Harmful or Fatal If Administered by Other Routes"
    2. "Independent Double Check and Time Out Required."
4. Each minibag shall be placed in a covering which will remain intact until time of administration. The label will contain the warnings:
    - For Intravenous Use Only – Harmful or Fatal If Administered by Other Routes"
    - "Do not remove covering until moment of administration."
    - "Independent Double Check and Time Out Required."
5. In very few specific cases where the health and safety of a young child, without central line access, could be compromised, the vinca alkaloid will be diluted in 10 mL of 0.9% Sodium Chloride for Injection and dispensed in a 20 mL syringe and packaged and labeled as specified above. Pediatric Oncology Chiefs will establish criteria for determining which patients may fall under this exception.
6. Vinca alkaloids that are delivered via 20 mL syringe for specific pediatric patients (young children) must be hand delivered directly from the pharmacist who prepared/checked the product to the qualified health care professional who will administer the dose and separately from any other medications that may be administered intrathecally. This process may occur at the nursing unit or pharmacy location.
7. At the time of compounding, all doses of vinca alkaloids shall be independently double checked by two qualified health care practitioners (e.g. two pharmacists or one pharmacist and one qualified technician) in the Pharmacy before dispensing (when only a pharmacist is present this procedure may include qualified nursing personnel). This check shall include verification against the current order, of the correct patient, drug, dose, calculations, route of administration, and frequency.
8. Prior to dispensing, two qualified staff as described above shall institute a pharmacy pause to verify correctness and completeness of the product.
9. Prior to administration of the medication, the independent double check must be performed by two qualified health care practitioners (e.g. one Pharmacist and one MD or two MDs or one MD and one RN or by two RNs).
    - The RN must possess a current Oncology Nursing Society (ONS) chemotherapy provider card and demonstrated clinical competency.
    - The independent double check will be performed for each new medication container (e.g. syringe, minibag) provided by the pharmacy.
10. Immediately following the double check, a "time out" shall be conducted at the patient's side by two qualified health care practitioners immediately prior to the administration of all doses of vinca alkaloids. This time out shall be documented in the medical record.
11. A time out is not required when a vinca alkaloid is prepared in an admixture with another drug (eg. vinCRIStine 0.6 mg and DOXOrubicin 15.3 mg in 0.9% Sodium Chloride 500mL).

B. Medications administered via the Intrathecal Route
Special processes to maximize safety

1. An independent double check shall be conducted in the Pharmacy by two health care professionals (e.g. two pharmacists, one pharmacist and one pharmacy technician, one pharmacist and one physician) after the preparation of the intrathecal dose to assure it is prepared and labeled correctly. For intrathecal drugs prepared in a sterile environment outside the Pharmacy (e.g., operating room, labor and delivery), the independent double check shall be conducted by any two health care professionals (e.g., two registered nurses, one physician assistant and one nurse anesthetist, one certified nurse midwife and one physician, etc.) after the preparation of the intrathecal dose to assure it is prepared and labeled correctly.
   a. Label to include the warning:
      - "Caution: For intrathecal use only."
      - "Independent Double Check and Time Out Required."
   b. The independent double check will be performed for each new medication container provided by the pharmacy and at hand-offs.
   c. When an intrathecal drug is prepared or dispensed by the Pharmacy, intrathecal medications must be delivered directly from the pharmacist who prepared or verified the product to the physician who will administer the drug to encompass the sterile process. This process may occur in the patient care area or the Pharmacy.

2. Intrathecal chemo medication will be compounded and dispensed in a syringe that is ***10 mL or smaller***.
   No other cytotoxic drugs will be present at the patient bedside during the intrathecal chemo administration process.
3. A "time out," including an independent double check, shall be conducted at the bedside immediately prior to the administration of all doses of intrathecal medications. (See definition above.) These checks shall be documented in the medical record.

C. Continuous intravenous infusions of Heparin and Argatroban
   Special processes to maximize safety
   1. The abbreviation "u" will not be accepted in heparin medication orders. Units must be spelled out.
   2. A standard concentration will be utilized for all continuous heparin and argatroban infusions.

Heparin	50 units/mL
Argatroban	250mg in 250mL

   3. When not ordered by Pharmacy protocol, order sets shall be utilized for prescribing continuous infusions of heparin.
   4. Infusion pumps will be used with the safety software activated when heparin and argatroban are administered.
   5. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, rate change, and at hand-offs.

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D. Continuous intravenous infusions of Insulin
   Special processes to maximize safety
   1. The abbreviation "u" shall not be accepted in the medication order. Units must be spelled out.
   2. A standard insulin concentration of 1 unit/ml shall be utilized for all adult continuous insulin infusions.
   3. Prime insulin tubing with 20 mL.
   4. Maximum will be insulin 250 units in 250 mL.
   5. Order sets shall be utilized for prescribing continuous infusions of insulin.
   6. Infusion pumps will be used with the safety software activated when insulin drips are administered.

7. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, and at hand-offs.

E. Distribution and storage of multi-dose Insulin Vials
Special processes to maximize safety

Inpatient Practice Area

1. Multi-dose vials of insulin shall be stored separately in appropriately labeled bins.
2. All multi dose vials of insulin must be discarded within 28 days of initially entering or opening (e.g. needle punctured). A revised expiration date that is 28 days from the initial entering or opening must be written or affixed on the vial.
3. All insulins other than approved floor stock insulin will be supplied as other medications on a patient specific basis.

Ambulatory Practice Areas

1. Multi-dose vials of insulin should be limited to those commonly used in the practice area.
2. Different types of insulin vials shall be stored separately in appropriate labeled bins.
3. All multi-dose vials of insulin must be discarded within 28 days of initially entering or opening (e.g., needle-punctured). A revised expiration date that is 28 days from the initial entering or opening must be written or affixed on the vial.

F. U-500 Insulin Injection for Inpatient and Emergency Department Use

1. U-500 insulin vials shall not be stocked in patient care areas and shall only be stored in the pharmacy department in a location separated from other insulin preparations. Warnings, signs, labels or other methods shall be used to differentiate the U-500 concentration from other insulin products.
2. Prescribing of U-500 insulin will be limited. U-500 insulin will appear in the Endocrinology and Pharmacist preference lists in KP HealthConnect, but will not appear the preference lists for other providers.
3. The abbreviation “u” (indicating units) will not be accepted in the medication order.
4. A soft stop “Alternative Alert” will appear in KP HealthConnect reminding the prescriber and pharmacist to confirm the need for the U-500 insulin concentration, and to check the dose and frequency. This alert will also appear when U-500 insulin orders are placed for newly admitted patients who have active U-500 ambulatory orders, and when ambulatory U500 insulin orders are placed prior to patient discharge from the hospital.
5. Total doses of U-500 insulin shall be expressed in terms of units and syringe units (e.g., “Dose equals **** units = ***syringe units”)
6. U-500 insulin orders must be verified by two pharmacists (dual pharmacist verification in KP HealthConnect).
7. The term “Conc” (Concentrated) will appear immediately following the drug name and preceding U-500 in the product name description on the KP HealthConnect drug label and Medication Administration Record (eMAR).
8. Pharmacy personnel shall prepare and dispense all doses of U-500 insulin in 0.3mL U-100 insulin syringes with a patient-specific label.
9. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required prior to administering each dose of U500 insulin.

G. Concentrated Electrolytes >0.9% Sodium chloride injection, and > 0.4 Eq/mL Potassium injection (chloride, acetate, and phosphate)
Special processes to maximize safety

1. Concentrated electrolyte injections will be stored ***only in the pharmacy***.
2. *There are two identified exceptions*: Cardiac ORs at the KP Los Angeles and Fontana Medical Centers

3. Commercially available, ready-to-administer products will be used whenever possible (eg. Sodium Chloride 3% in 500mL bags).Patient-specific labeling will be affixed to each container prior to dispensing.
4. All concentrated sodium chloride infusions shall be affixed with a special label eg. “Hypertonic Sodium 23.4%)” (letters in Red).
5. Infusion pumps will be used with the safety software activated concentrated electrolytes are administered.
6. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, rate change, and at hand-offs.

H. Storage of Sterile Water for Injection

1. In order to reduce the risk of sterile water for injection being administered intravenously, Materials Management may only store sterile water for injection in vials or ampules less than 100mL.
2. Containers greater than or equal to 100mL will be stored in the Inpatient Pharmacy.

I. Magnesium Sulfate Infusions

Magnesium sulfate is considered to be a High Alert Medication If the:

- Concentration is greater than 40 mg/mL in a volume of less than or equal to 150mL, or if the
- Concentration is greater than 6 mg/mL in a volume larger than 150mL.

If these limits are exceeded, the following will be required:

1. Independent double checks by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, rate change, and at hand-offs.
2. Infusion pumps will be used with the safety software activated when magnesium sulfate infusions are administered. If the ordered concentration of magnesium sulfate is not in the pump library, or if a pump without a drug library is used (eg. CADD pump), independent calculations of the dose and rate must be performed prior to administration.

J. Alteplase (t-PA, Activase®) Intravenous Infusions

Special processes to maximize safety

1. Alteplase (t-PA) may only be prescribed using a KP HealthConnect order set. Exception: prescribing low dose alteplase (Cathflo™) for catheter clearance
2. All infusions of Alteplase (t-PA) for use in all departments including, but not limited to, the hospital and emergency departments shall be prepared by pharmacy personnel in an inpatient pharmacy setting. Administration of Alteplase via IV, intra-arterial push or instillation for resolving clots in tubing is excluded from the High Alert Policy.
3. Prepared mixtures of Alteplase will include only the patient specific dose ordered. No excess medication is allowed in the final container to be used for drug administration to the patient (i.e. only the exact dose of the drug is to be in the final administration container).
4. The label for each dose shall include at a minimum; the Patient Name and Medical Record Number, the patient location, the generic and brand name of the drug, the concentration of the drug supplied in mg/mL, the total drug quantity/total volume of solution that is contained in the package, the expiration date and the rate of infusion/administration. Each label, e.g. the bolus syringe and the infusion container) shall be patient specific for that dose to be administered.
5. The compounding of the medications should be accomplished without interruption and in an area that is sequestered from other activities of disruption.
6. Infusion pumps will be used with the safety software activated when alteplase is in the pump library. If alteplase is not in the pump library, the pump will be used in the basic mode, and independent calculations of the dose and rate must be performed prior to administration.
7. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, rate change, and at hand-offs.

8. To ensure the entire dose of alteplase is administered, flush the I.V. line to clear residual drug from I.V. tubing.

K. Tenecteplase (TNKase®) Intravenous Injections

Special Processes to maximize safety

1. Tenecteplase (TNKase®) may only be prescribed using a KP HealthConnect Order Set/preprinted order.
2. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required whenever an injection of tenecteplase (TNKase®) is initiated.
3. Whenever tenecteplase (TNKase®) is stored in an automated dispensing cabinet (e.g. PYXIS® SureMed®, Omnicell®, etc) a "Clinical Data Category:" warning shall be used to differentiate the product from alteplase (t-Pa) and minimize the possibility of a substitution error.
4. Whenever tenecteplase (TNKase®) is stored in an automated dispensing cabinet (e.g. PYXIS® SureMed®, Omnicell®, etc), it will not be placed on the device override list. This will minimize the possibility of clinical staff removing the drug without a medication order being placed in KP HealthConnect.

L. Neuromuscular Blocking Agents

Special processes to maximize safety

1. Neuromuscular blockers shall only be stored in specific areas within the hospital, e.g. OR, PACU, Critical Care (PICU/NICU/ICU), ED, Cath Lab.
2. Distinctive labeling and/or storage shall be utilized to distinguish neuromuscular blockers from other medications outside the O.R., e.g. segregation, colored bins, etc. Pharmacy will affix a label to all vials prior to dispensing to areas outside the OR – e.g. Critical Care, ED, PACU
3. All infusions of neuromuscular blockers shall be affixed with the following label prior to being dispensed from Pharmacy:
   - **Caution: Paralyzing Agent.** Patient must be on a ventilator or other ventilation support"
4. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required for each intravenous push dose. For infusions, independent double checks are required initially, at each bag change, rate change, and at hand-offs.
5. Infusion pumps will be used with the safety software activated when neuromuscular blocker infusions are administered.. When a drug is not in the pump library, the pump will be programmed by entering the necessary fields of data based upon the mode being used, and independent calculations of the dose and rate must be performed prior to administration..
6. Policies and procedures regarding the responsibilities of anesthesia providers in the High Alert Medication Program are specified in Regional High Alert Medication Safety Practices for Anesthesia.
7. A "time out," shall be conducted at the bedside immediately prior to the administration of all bolus doses and infusions of neuromuscular blocking agents. (See definition above.) These checks shall be documented in the medical record.
8. Whenever feasible, KP HealthConnect Order Sets/preprinted orders should be utilized for prescribing neuromuscular blocking agents. Orders must also state:
   - "Patient must be on a ventilator"

M. Opiate/Narcotic infusions including PCA therapy

Special processes to maximize safety

1. Whenever feasible, KP HealthConnect Order Sets/preprinted orders should be utilized for prescribing opiate/narcotic infusions and PCA therapy.
2. The following standard concentrations shall be utilized for PCA therapy:
   a. morphine 1 mg/mL
   b. fentanyl 10 mcg/mL
   c. hydromorphone 0.2 mg/mL
3. In clinical situations where more concentrated infusions are required, the syringes/bags shall be affixed with a "Note Concentration" label.

4. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag or syringe change, rate change, and at hand-offs.
5. Continuous Opiate/Narcotic Infusions:
   a. Infusion pump will be programmed using the drug library.
   b. If a drug is not in the drug library; or the dose and/or concentration limits of the drug library do not allow the drug to be administered using the drug library, an independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) must include verification of the correct drug, concentration, and correct dose/rate (including using mathematic calculations with appropriate factors for weight-based or body surface area-based doses).
6. PCA Therapy:
   a. PCA Pumps with "Smart Technology" and a "Drug Library" (e.g. Alaris, Curlin)
   - PCA pumps with a drug library will be programmed using the drug library.
   - If a drug is not in the drug library; or the dose and/or concentration limits of the drug library do not allow the drug to be administered using the drug library, an independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) must include verification of the correct drug, concentration, and correct dose/rate (including using mathematic calculations with appropriate factors for weight-based or body surface area-based doses).

   b. PCA Pumps without "Smart Technology" or "Drug Library" (e.g. CADD Prizm)
   - PCA pumps without a drug library will be programmed entering the necessary fields of data.
   - An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) must include verification of the correct drug, concentration, and correct dose/rate, including independent verification of mathematic calculations with appropriate factors for weight-based or body surface area-based doses.
7. Policies and procedures regarding the responsibilities of anesthesia providers in the High Alert Medication Program are specified in Regional High Alert Medication Safety Practices for Anesthesia.

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N. All medication infusions administered via the epidural route including Opiate/Narcotic Medications

Special processes to maximize safety

1. Whenever feasible, KP HealthConnect Order Sets/preprinted orders should be utilized for prescribing epidural infusion.
2. All epidural infusions shall be administered utilizing a programmable/advanced mode pump and label on pump display with appropriate medication.
3. Whenever feasible, commercially prepared bags of medications shall be utilized for epidural infusion.
4. Specific identified (e.g. yellow stripe) tubing without injection ports shall be utilized for administering epidural infusions.
5. Infusion pumps will be used with the safety software activated when specific drugs, concentrations and volumes are in the pump library. When a drug is not in the pump library, the pump will be programmed by entering the necessary fields of data based upon the mode being used, and independent calculations of the dose and rate must be performed prior to administration.
6. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, rate change, and at hand-offs.
7. Policies and procedures regarding the responsibilities of anesthesia providers in the High Alert Medication Program are specified in Regional High Alert Medication Safety Practices for Anesthesia.

O. Intravenous, Intraperitoneal, Intraarterial, Intrahepatic and Intrapleural Cytotoxic Chemotherapy

Special processes to maximize safety

1. Verbal orders shall not be accepted when prescribing intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy with the exception of date or time changes and clarifications.
2. Whenever feasible, KP HealthConnect order sets, treatment plans, or preprinted orders shall be used for prescribing intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy.
3. When prescribing intravenous cytotoxic chemotherapy, orders shall be written for individual doses, not the total amount of drug for the entire course of therapy.
4. Complete orders for intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy should include:
    a. Patient name and medical record number, date and time the order is written
    b. All elements used to calculate the initial dose or change of treatment of a chemotherapy agent should be included on the order or prescription (height, weight, and/or BSA if applicable)
    c. Indication that written informed consent was obtained for research protocols
    d. Allergies
    e. Chemotherapy agent name, dose, route, and date of administration for each drug
    f. Cycle number and/or week number as appropriate to the regimen, if applicable
5. All doses of intravenous intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy shall be independently double checked by two qualified health care practitioners (e.g. two pharmacists or one pharmacist and one qualified technician) in the Pharmacy before dispensing (when only a pharmacist is present this procedure may include qualified nursing personnel). This check shall include, against the current order, a verification of the correct patient, drug, dose, route of administration, and frequency. This check shall be documented in appropriate pharmacy record.
6. Specialized computer software (e.g., BEACON) shall be utilized by the pharmacy to assist with the monitoring of all intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy.
7. Distinctive labeling/packaging shall be utilized to distinguish intravenous, intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy from other medications.
8. All doses of intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy shall be affixed with a “Caution: Chemotherapeutic Agent” label.
9. Missing dose requests for intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy shall be investigated immediately by a pharmacist and a replacement dose shall not be dispensed until the disposition of the first dose is verified.
10. RNs must possess a current Oncology Nursing Society (ONS) chemotherapy provider card and demonstrated clinical competency to administer intravenous, intraperitoneal, and intraarterial cytotoxic chemotherapy. Pediatric RNs must possess either a current ONS chemotherapy provider card or a current Association of Pediatric Hematology and Oncology Nurses (APHON) Chemotherapy & Biotherapy provider card and demonstrated clinical competency. RNs with the above qualifications must have additional training on the use of arterial pumps if they will be administering intraarterial cytotoxic chemotherapy. Physicians will administer intrapleural and intrahepatic cytotoxic chemotherapy.
11. Two qualified health care practitioners (per Independent Double Check Definition) shall independently double check all doses of intravenous, intraperitoneal, intraarterial, intrahepatic and intrapleural cytotoxic chemotherapy at the bedside before administration, at each bag change, rate change, and at hand-offs.
12. The Infusion pumps will be used with the safety software activated when specific drugs, concentrations and volumes are in the pump library. When a drug is not in the pump library, the

pump will be programmed by entering the necessary fields of data based upon the mode being used.

13. Order changes involving infusion rates and/or pump settings should be documented via current practices.

P. Bortezomib (Velcade®)

Special processes to maximize safety

This drug is can be administered intravenously or subcutaneously. (Intrathecal administration can be fatal.) Route-specific administration instructions will appear (e.g. For intravenous use only. Harmful or Fatal if Administered by Incorrect Route):

a. In the "summary sentence" of the KP HealthConnect medication order at the prescribing step;
b. On the patient-specific medication label ;
c. In the medication administration instructions on the electronic medication administration record eMAR.

1. Immediately following the independent double check, a "time out" shall be conducted at the patient's side by two qualified health care practitioners immediately prior to the administration of all doses of bortezomib (Velcade®). This time out shall be documented in the medical record. A reminder to perform the time out will appear on the KP HealthConnect locations in 1a, 1b, and 1c above.
2. All other labeling and packaging requirements described in Section IV.O above (Cytotoxic Chemotherapy) will apply

Q. Intravenous Infusions of ketamine, pentobarbital

1. Whenever feasible, KP HealthConnect Order Sets/preprinted orders should be utilized for prescribing infusions of ketamine, and pentobarbital.
2. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, rate change, and at hand-offs.
3. Infusion pumps will be used with the safety software activated when specific drugs, concentrations and volumes are in the pump library. When a drug is not in the pump library, the pump will be programmed by entering the necessary fields of data based upon the mode being used, , and independent calculations of the dose and rate must be performed prior to administration..

R. Intravenous infusions of propofol, midazolam, lorazapam, dexmedetomidine (Precedex)

1. Whenever feasible, KP HealthConnect Order Sets/preprinted orders should be utilized for prescribing infusions of propofol, midazolam, and lorazepam, and dexmedetomidine (Precedex).
2. An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, and at hand-offs.
3. Infusion pumps will be used with the safety software activated when specific drugs, concentrations and volumes are in the pump library. When a drug is not in the pump library, the pump will be programmed by entering the necessary fields of data based upon the mode being used, and independent calculations of the dose and rate must be performed prior to administration..

S. Medication Administration to Pediatric and Neonatal Patients

Special processes to maximize safety

1. The High Alert Medications for use in all Pediatric and Neonates will include those drugs and medication management requirements in the adult High Alert Medication Policy.

2. In addition, an independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag or syringe change, and at hand-offs for these medications:
   a. Remicade, all routes
   b. Chloral hydrate, all routes
   c. Insulin, all routes
   d. Digoxin, P.O. and I.V.

3. Licensed vocational nurses may participate in independent double checks for subcutaneous insulin injections in medical office settings.

4. DOPamine, DOBUTamine, Epinephrine, Norepinephrine and Phenylephrine Infusions: An independent double check by two qualified health care practitioners (e.g. nurse, pharmacist, physician) is required initially, at each bag change, rate change, and at hand-offs. Infusion pumps will be used with the safety software activated when specific drugs, concentrations and volumes are in the pump library. When a drug is not in the pump library, the pump will be programmed by entering the necessary fields of data based upon the mode being used, and independent calculations of the dose and rate must be performed prior to administration..

The table below lists standard concentrations for continuous I.V. infusions for all patients admitted to pediatric, pediatric intensive care (PICU) and neonatal intensive care units (NICUs). Affix a “Note concentration” sticker to all bags/syringes that contain customized concentrations.

Standard Concentrations for pediatrics, PICU and NICU

	Concentration #1	#2	#3
Potassium Chloride	0.1 mEq/mL (10 mEq/100 mL)	0.2 mEq/mL (20 mEq/100 mL) infuse via central line only	
Pediatrics/PICU specific			
DOPamine	1600 mcg/mL (400 mg/250 mL)	3200 mcg/mL (800 mg/250 mL)	
DOBUTamine	2000 mcg/mL (500 mg/250 mL)	4000 mcg/mL (1 Gm/250 mL)	
Epinephrine	16 mcg/mL (4 mg/250 mL)	64 mcg/ mL (16 mg/250 mL)	
Norepinephrine	16 mcg/mL (4 mg/250 mL)	32 mcg/mL (8 mg/250 mL)	64 mcg/mL (16 mg/250 mL)
Phenylephrine	40 mcg/mL (10 mg/250 mL)	80 mcg/mL (20 mg/250 mL)	
Insulin, Regular	0.5 Unit/mL	1 Unit/mL	
NICU specific			
DOPamine	400 mcg/mL	800 mcg/mL	1600 mcg/mL
DOBUTamine	500 mcg/mL	1000 mcg/mL	2000 mcg/mL
Epinephrine	20 mcg/mL	40 mcg/mL	
Insulin, Regular	0.1 Unit/mL	0.5 Unit/mL	