

# High Alert Medication Program

Kaiser Permanente Northern California

## Educational Module

### Directions:

- Read the attached material and complete the post tests.
- RETURN your answer sheets to your manager You must pass the test with 100%.



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## Preventing Medication Errors Self Study Packet-Traveler RN

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**Objectives:**

After reading this packet and completing the quiz, the learner will be able to:

- Discuss the five rights of medication administration
- Identify examples of poor communication that lead to medication errors
- Identify the importance of bio-availability in determining administration schedules for medications.

## Preventing Medication Errors

Beth is having a busy day on the general medical/surgical unit where she works part-time. As a very conscientious and thorough nurse, Beth attempts to provide the highest quality of care to the patients she is assigned. She receives an order for Actinomycin-D for her patient with Wilm's Tumor. Because Beth has never administered this drug and is unfamiliar with its normal dosage range, she transposes the dosage from 2.7 mg to 7.2 mg. Her failure to confirm the dosage results in the death of her 34-year-old patient.

Beth's situation is similar to that of thousands of other nurses who face the same stressors everyday. Her lack of familiarity with the prescribed medication, failure to refer to the unit drug reference, double check the order with the doctor or call the hospital pharmacist resulted in tragic circumstances.

## Medication Error Defined

The Food and Drug Administration estimates that medication errors cause at least one death every day and injure nearly 1.3 million people in the United States every year. The 'National Coordinating Council for Medication Error Reporting and Prevention' defines a medication error as

“any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is under the control of the health care professional, patient or consumer. Such events may be related to professional practice, health care products, procedures, and systems, including prescribing; order communication; product labeling, packing and nomenclature; compounding; dispensing; distribution; administration; education monitoring and use” (2003).

It is important to note that this definition includes all aspects and systems related to drug administration, from manufacturing to the patient's bedside; from the bedside to the patient's home.

## The Five Rights

Nurses are legally responsible for applying the five rights of medication administration as a Standard of Care.

### Right Drug:

Administration of the wrong drug is the most common error that occurs. Factors that contribute to wrong drug error include similar labeling and packaging of products, medication with similar names and storage of these similar products together. In addition, poor communication is a common cause of administering the wrong drug. When transcribing verbal orders or verifying transcription of orders, a few simple precautions can help avoid errors:

- When taking a verbal order, write the order as it is being given by the provider, read it back to the provider, and spell out “sound-a-like drugs”
- Avoid using dosage and product abbreviations.
- Never assume route of administration— if necessary, call the provider to obtain clarification.
- Never use trailing zeros (write 25 not 25.0).
- Never try to decipher illegible orders—call the provider to obtain clarification.
- When in doubt, always check with the prescriber, pharmacist or literature.
- Always check the drug label and dose.
- Do not administer any drug if you are unsure of its intended use for your patient
- DO NOT ASSUME ANYTHING

### Right Dose:

If dosage must be calculated, always recheck your math and have someone else verify your final dosage. It is important to consider the patient's age, size, and vital signs when deciding if a dose is appropriate. Newborns, pediatric and elderly patients are particularly susceptible to slight changes in medication dose.

### Right Time:

In general, medications must be given within one-half hour before or after the actual time specified in the orders. Kaiser has a specific policy regarding the "before/after" rule (ref: SOP Medication Administration). Check these guidelines. When scheduling administration times, it is important to consider drug-drug and drug-food interactions. Many drugs interfere with absorption of other drugs when given simultaneously.

Appropriate spacing of doses also needs to be considered. Bioavailability, the degree and rate at which a substance (as a drug) is absorbed into the system, highlights the need for consistent dosing around the clock and should also be considered to ensure efficacy of the medication. If diagnostic studies are scheduled, a medication dose may need to be skipped or delayed until testing is complete.

### Right Route:

Many medications can be administered by a variety of routes, such as oral, rectal, intravenous, subcutaneous, intramuscular, or sublingual. The route selected by the prescriber depends on the patient's condition and the speed with which the therapeutic effect will need to occur. The prescribed dosage is based on the route by which the drug is given. In general, oral dosages are greater than injected dosages for the same drug. Errors can occur when a dose intended for oral administration is given by injection. For example, 30 mg dose of Morphine Sulfate mistakenly given IV rather than orally could potentially result in respiratory arrest and death. Special caution must be taken with medication given by the intravenous route. Many drugs will cause severe soft tissue injury if the IV becomes infiltrated. It is important to check for blood return prior to administration of any intravenous medication given by direct IV injection (push), intermittent (piggyback) or continuous infusion. Medications given intravenously have a rapid onset of action. It is necessary to stay with the patient during the first few minutes of any intravenous infusion to assess for signs and symptoms of adverse reaction.

### Right Patient:

In today's hectic health care environment, it is especially important to confirm a patient's identity prior to conducting any procedure including medication administration. Many nurses float between units, work part-time or work in ambulatory settings, where large numbers of patients are in and out during the day. These situations increase the probability of giving a medication to the wrong patient. In order to correctly identify the patient, **two patient identifiers** must be used to verify the patient's identity. ***It is imperative to follow the procedure outlined below to properly identify the patient during each step of the medication administration process using two patient identifiers.***

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### Procedure For Isolation Patients

- ☐ Take the MAR to the Pyxis machine to remove the medication from the Pyxis
  - ☐ The Pyxis machine will print out the patient's name, medical record number, and medication order.
  - ☐ Cross check the Pyxis information with the MAR.
  - ☐ Take the Pyxis printout (see below) into the patient's room and check against the patient's name and medical record number against the patient's armband
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Pyxis Medication System 2000 50119g++  
 Station : SAC4EA (PROFILE)  
 #1 Mar 14 08:27:18

REMOVED MEDS

Quantity	Medication	Disp/PA	EXP/RY
7	ADAMANTIN <small>Yes eg. label            Med ID: AM123</small>	2 15	77

Dose: 2  
 Order Number: 4210013  
 Doctor Name: BJEFF FANE  
 Directions:  
 2 TABS PO QM when needed for temperature greater than 101  
 (36.3C) or q4h PRN

For: \_\_\_\_\_  
 ID: \_\_\_\_\_

Patient  
 Notes: \_\_\_\_\_

By: \_\_\_\_\_  
 ID #: \_\_\_\_\_

Ask the patient to state their name

- If the patient cannot state their name ask family member/ friend to identify the patient
- Place the Pyxis printout in the shred container

Procedure for ICU

- Take the MAR to the patient's bedside and check the patient's name and medical record number on the MAR against the patient's armband

Procedure for PACU

- Take the MD order to the patient's bedside and check the patient's name & medical record number on the MD order against the patient's armband

For the Unconscious Patient

- Use the appropriate process defined above, based on your patient's location

For the Unconscious Patient with no Armband

- Two nurses must participate in validating the patient's identification and reapplication of the arm band following facility guidelines about whom to consult.

**Nursing Responsibility**

While it is important to utilize the five rights when administering medications, nursing responsibilities related to drug therapy also require an extensive knowledge of pharmacology, including the indications for the medication, method of action of the medication, the normal physiologic effects of the medication, and potential adverse and side effects of the medication. Use of the nursing process when monitoring drug therapy is essential to ensure that each patient achieves the best possible outcome from his or her drug regimen. The nurse is often the first health care provider to identify signs and symptoms that may indicate a need for drug therapy or may signal an adverse outcome from ongoing therapy.

## High Alert Medications

High alert medications are those drugs which are involved in a higher percentage of medication incidences and/or sentinel events, or that carry an increased risk for error, abuse, or other adverse outcomes. The high alert medications were identified from KFH hospital-specific data. Safe use of these medications is detailed in the High Alert Medication List, Policy and Procedure. A High Alert Medication Module and Grid is attached. Please review prior to completing the post test.

There are five risk factors which are associated with high alert medications on the High Alert Medication List and they are as follows:

1. Inherent toxicity of the medication
2. Potential for confusion between look-alike and/or sound-alike products
3. Potential for confusion with other medications that are also measure in units (e.g. insulin)
4. Potential for errors involving programming of the insulin pump
5. Fatal if administered intrathecal when it is the incorrect route

It is critical that all RNs understand the HIGH Alert medication policy and are able to assure safe medication practices for all our members.

### High Alert Medication List

High-alert medications are those drugs which are involved in a higher percentage of medication incidences and/or sentinel events, or that carry an increased risk for error, abuse, or other adverse outcomes. The list of high alert medications was identified from KFH hospital-specific data or from literature sources and includes:

- Vinca Alkaloids: VinCRISTine (Oncovin<sup>®</sup>), VinBLAStine (Velban<sup>®</sup>), Vinorelbine (Navelbine<sup>®</sup>)
- Continuous intravenous infusions of Heparin
- Continuous intravenous infusions of Insulin
- Neuromuscular Blocking Agents
- Intravenous Cytotoxic Chemotherapy
- Concentrated Electrolytes [ $>0.9\%$  Sodium chloride injection, and  $\geq 2\text{mEq/mL}$  Potassium injection (chloride, acetate, and phosphate)]
- Magnesium sulfate infusions
- Alteplase (t-PA, Activase<sup>®</sup>) infusions
- Epinephrine, Norepinephrine, Isoproterenol infusions
- Opiate/Narcotic infusions, including PCA therapy
- Medications administered via the Intrathecal route
- Medications administered via the Epidural route

- For all doses of medications (except oral vitamins and iron) administered to critically ill neonates in **NICU and Special Care Nurseries**
- Adult High Alert list and all medications used for procedural sedation (except when administered by an anesthesia provider); as well as all routes for Digoxin and Chloral Hydrate medications administered on a **Pediatrics Unit**
- All IV's administered in the PICU (Pediatric Intensive Care Unit).

## High Alert Medication List Policy and Procedure

### I. Purpose

To establish safe medication practices for High Alert medications to maximize the safety of the medication processes associated with these medications.

### II. Policy

High alert medications are those drugs which are involved in a higher percentage of medication incidences and/or sentinel events, or that carry an increased risk for error, abuse, or other adverse outcomes. These medications are identified from KFH hospital-specific data, or from literature sources. The special processes and interventions on the Northern California Regional High Alert medication list are adopted, and are implemented on all the patient care areas/units of KFH Hospitals and Medical Offices. Medications used during medical emergencies are exempt from the medication management procedures in this policy. These special safeguards may relate to any step in the medication process, including but not limited to: selection and procurement, storage, ordering and transcribing, administration, monitoring, and medication system evaluation. The Northern California Regional Medication Safety Committee is responsible for the creation and maintenance of the Regional High Alert medication list. The High Alert Medication List established by this policy is the sole list and is standardized throughout the Northern California Region of Kaiser Permanente. Requests for changes to the Regional High Alert medication list shall be forwarded for consideration to the Regional Medication Safety Committee. See attached algorithm.

### III. Procedures

#### A. **Vinca Alkaloids: VinCRISTine (Oncovin<sup>®</sup>), VinBLASStine (Velban<sup>®</sup>), Vinorelbine (Navelbine<sup>®</sup>) Special processes to maximize safety**

1. All doses of vinCRISTine and vinBLASStine shall be prepared and dispensed in 25mL minibags of 0.9% Sodium Chloride injection. Vinorelbine shall be prepared and dispensed in a maximum of 50 mL minibags of 0.9% Sodium Chloride.
2. The minibag label shall contain the warning, "Fatal if given intrathecally. For IV use only. Do not remove covering until moment of injection."
3. The minibag shall be affixed with a High Alert Drug label
4. Each minibag shall be placed in an over wrap (e.g. Chemo bag) with the same warning listed above in (2).
5. As part of a pause for verification, an independent double check shall be conducted in the Pharmacy by two health care professionals including an independent double check as stated in section III E, 5 below.
6. The Universal Protocol for "time out" shall be conducted at the bedside immediately prior to the administration of all doses by two qualified health care professionals (chemotherapy proficient registered nurse and second chemotherapy proficient licensed nurse or pharmacist or physician) including the independent double check verifying the correct patient, drug, dose, dose calculations, and route of administration. This double check shall be documented in the medical record by both parties. Order changes involving infusion rates and/or pump settings should be documented via current practices (i.e. flow sheet).
7. 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 10mL of 0.9% NaCl and dispensed in a 20mL syringe and packaged and labeled as in number 2,3 and 4 above. Pediatric Oncology Chiefs will establish criteria for determining which patients may fall under this exception.
8. Vinca alkaloids that are delivered via 20mL syringe for specific pediatric patients (young children) must be delivered directly from the pharmacist who prepared/checked the product to the qualified health care professional who will administer the dose. This process may occur at the nursing unit or pharmacy location.
  9. For specific drug handling, intravenous line management and patient monitoring procedures see Vinca Alkaloid Preparation and Administration Policy.
  10. Exceptions may be granted on a case by case basis.

## **B. Continuous intravenous infusions of Heparin**

### **Special processes to maximize safety**

1. The abbreviation “u” shall not be accepted in the medication order
2. A standard heparin concentration of 100 Units/ml shall be used for all continuous heparin infusions. .  
Except in neonates
3. Whenever feasible, preprinted orders shall be used for prescribing continuous infusions of heparin.
4. All infusion bags shall be affixed with a High Alert Drug label.
5. If heparin infusions are stored in Pyxis, a Clinical Data Category warning shall display upon drug removal, “High Alert Drug.”
6. The “profile” feature in the Baxter Colleague infusion pumps or Smart pumps shall be used to infuse continuous infusions of heparin.
7. Two qualified healthcare professionals shall independently double check the correct patient, drug, dose, dose calculations, and infusion pump settings at the bedside whenever a continuous infusion bag of heparin is initiated, upon any change in dosage, at bag change and at handoff. Double checks shall be documented on the electronic or paper Medication Administration Record (MAR) in the medical record by both parties. Order changes involving infusion rates and/or pump settings and double checks involving bag change or at hand-off may be documented via current practices (i.e. flow sheet).
8. All therapeutic continuous Heparin infusion bags shall be supplied by pharmacy to patient care areas of the facility with a patient specific label except as defined in policy for urgent case use below.
9. Therapeutic Heparin infusion bags may be stored as stock in critical care areas (e.g. Emergency Department, Intensive Care Units, and Interventional Radiology) where it is not feasible for direct pharmacy supply for urgent cases. These pre-mixed Heparin bags supplied by the Pharmacy as stock must be supplied through an automated dispensing system (e.g. Pyxis, AutoMed, Omnicell) for patient safety and medication accountability.

## **C. Continuous intravenous infusions of Insulin**

### **Special processes to maximize safety**

1. The abbreviation “u” shall not be accepted in the medication order
2. A standard insulin concentration of 1Unit/ml shall be used for all continuous insulin infusions, except in neonates
3. Whenever feasible, preprinted orders shall be used for prescribing continuous infusions of insulin.
4. All continuous insulin infusions shall be affixed with a High Alert Drug label.
5. The “profile” feature in the Baxter Colleague infusion pumps or Smart pumps shall be used to infuse continuous infusions of insulin.

- 6 Two qualified healthcare professionals shall independently double check the correct patient, drug, dose, dose calculations, route of administration, and infusion pump settings at the bedside whenever a continuous infusion bag of insulin is initiated, upon any change in dosage, at bag change and at handoff. Double checks shall be documented on the electronic or paper Medication Administration Record (MAR) in the medical record by both parties. Order changes involving infusion rates and/or pump settings and the double checks involving bag changes and at hand-off may be documented via current practices (i.e. flow sheet). Anesthesia practitioners will follow the High Alert Medication List Policy and Procedure for Anesthesia.

**D. Neuromuscular Blocking Agents**  
**Special processes to maximize safety**

1. Neuromuscular blockers shall only be stored in specific areas within the hospital, e.g. OR, ICU, ED, after approval from the Pharmacy and Therapeutics Committee.
2. Distinctive labeling and/or storage shall be used to distinguish neuromuscular blockers from other medications outside the O.R., e.g. segregation, colored labels, etc
4. If neuromuscular blockers are stored in Pyxis, a Clinical Data Category warning shall display upon drug removal, "High Alert Drug."
5. All infusions of neuromuscular blockers shall be affixed with a High Alert Drug label.
6. Two qualified health care professionals (two registered nurses or a registered nurse and physician) shall independently double check the correct patient, drug, route of administration, dose, dose calculations, and infusion pump settings at the bedside for all infusions of neuromuscular blockers at initiation, dosage change, at bag change and at handoff. Double checks shall be documented on the electronic or paper Medication Administration Record (MAR) in the medical record by both parties. Order changes involving infusion rates and/or pump settings and double checks involving bag change and at handoffs may be documented via current practices (i.e. flow sheet). Anesthesia practitioners will follow the High Alert Medication List Policy and Procedure for Anesthesia.

**E. Intravenous Cytotoxic Chemotherapy**  
**Special processes to maximize safety**

1. Verbal/telephone orders shall not be accepted when prescribing intravenous cytotoxic chemotherapy with the exception of date or time changes and clarifications.
2. Whenever feasible, preprinted orders shall be used for prescribing intravenous 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 Cytotoxic chemotherapy should include:
  - a. Patient name and medical record number, date and time the order is written
  - b. Statement whether this is a new order or a change to an existing order
  - c. All elements used to calculate the dose of a chemotherapy agent should be included on the order or prescription (height, weight, and/or BSA if applicable)
  - d. Indication that written informed consent was obtained, if applicable
  - e. Allergies (except for outpatient prescriptions)
  - f. Chemotherapy agent name, dose, route, and date of administration for each drug
  - g. Cycle number and/or week number as appropriate to the regimen, if applicable
5. All doses of intravenous cytotoxic chemotherapy shall be independently double checked by two qualified health care professionals (e.g. two pharmacists or one pharmacist and one qualified technician) in the Pharmacy before dispensing. When only one pharmacist is present this procedure may include qualified medical or chemo proficient nursing personnel. This check shall include a verification of the

correct patient, drug, dose, route of administration, and frequency. This check shall be documented in the IV compounding profile/record.

6. Specialized computer software (e.g. COPS or CAMMALOT) shall be used by the pharmacy to assist with the monitoring of all intravenous cytotoxic chemotherapy.
7. Distinctive labeling/packaging shall be used to distinguish intravenous cytotoxic chemotherapy from other medications.
8. All doses of intravenous cytotoxic chemotherapy shall be affixed with a High Alert Drug label
9. Missing dose requests for intravenous 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. Only nurses with documented competency in chemotherapy administration may administer intravenous cytotoxic chemotherapy
11. Two qualified health care professionals (one chemotherapy proficient registered nurse plus another chemotherapy proficient licensed nurse or pharmacist or physician) shall independently double check all doses of intravenous cytotoxic chemotherapy at the bedside before administration or at initiation and upon any change in dosage, at bag change or at handoff. Double checks shall verify the correct patient, drug, dose, dose calculations, route, and frequency of administration. This check shall be documented in the medical record by both parties. Order changes involving infusion rates and/or pump settings may be documented via current practices (i.e. flow sheet)..

**F. Concentrated Electrolytes >0.9% Sodium chloride injection, and  $\geq 0.4$  mEq/mL Potassium injection (chloride, acetate, and phosphate)**

**Special processes to maximize safety**

1. Concentrated electrolyte injections shall be stored only in the pharmacy.
2. When infusions of concentrated sodium chloride injection are required for patient use, only commercially prepared products (when possible), with patient-specific labeling, shall be dispensed. All concentrated sodium chloride infusions shall be affixed a High Alert Drug label.
3. Two qualified healthcare professionals shall independently double check the correct patient, dose, dose calculations, route of administration, and infusion pump settings at the bedside whenever a continuous infusion of concentrated sodium chloride injection is initiated, at dosage changes, at bag changes and at handoff. Double checks shall be documented on the electronic or paper Medication Administration Record (MAR) of the medical record by both parties. Order changes involving infusion rates and/or pump settings and the double checks involving bag change or at handoff may be documented via current practices (i.e. flow sheet).
4. Exceptions to this policy are granted on a case by case basis (e.g., Oakland Medical Center Neurosurgery).

**G. Magnesium sulfate infusions (40mg/mL) with total I.V. bag volume size larger than 100ml**

**Special processes to maximize safety**

1. A standard concentration of 40mg/mL shall be used for all continuous infusions of magnesium sulfate.
2. If magnesium sulfate infusions are stored in Pyxis, a Clinical Data Category warning shall display upon drug removal, "High Alert Drug."
3. All magnesium sulfate infusions in these patient care areas shall be affixed with a High-alert drug label.
4. Two qualified healthcare professionals shall independently double check the correct patient, dose, dose calculations, route of administration, and infusion pump settings at the bedside whenever a continuous infusion of magnesium sulfate with a total I.V. bag size is larger than 100ml is initiated, and upon any change in dosage at bag change and at handoff. Double checks shall be documented on the electronic or paper Medication Administration Record (MAR) in the medical record by both parties. Order changes

involving infusion rates and/or pump settings and the double checks involving bag change or at handoff may be documented via current practices (i.e. flow sheet)..

## H. **Alteplase (t-PA, Activase<sup>®</sup>) Intravenous Infusions** **Special processes to maximize safety**

1. 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 a pharmacist. Administration of Alteplase via IV, intra-arterial push or instillation for resolving clots in tubing is excluded.
2. For emergency use, when the pharmacist is verified as not available to prepare the medication, one package dose of Alteplase will be securely stored in the Emergency Department. When this dose must be used appropriate documentation containing patient identification and reason for use must be transmitted to pharmacy before a new emergency dose is issued. Use of these emergency doses will be audited for policy compliance.
3. All infusions of Alteplase shall be affixed with a High Alert drug label.
4. Alteplase will be supplied from the Pharmacy as two patient specific doses as determined by patient weight.
  - a. The bolus dose shall be supplied in a syringe with the patient specific dose to be administered (e.g. 10% of total patient specific dose)
  - b. The continuous infusion of Alteplase shall be supplied as the patient specific dose for completion of the therapy. There shall be no overfill. (e.g. 90% of total patient specific dose)
5. 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 (the bolus syringe and the infusion container) shall be patient specific for that dose to be administered.
6. The compounding of the medications should be accomplished without interruption and in an area that is sequestered from other activities of disruption.
7. Two qualified pharmacy staff shall independently double check the correct patient, dose, dose calculations, route of administration and labels at the point of completion of compounding the sterile dosage forms of Alteplase. If two qualified healthcare professionals are not available in the Pharmacy the checks may be accomplished with a pharmacist and a licensed nurse or physician at the location of administration using the documentation of the compounding activities. This check shall be documented in the pharmacy records by both parties.
8. Two health care professionals (e.g. two licensed nurses, or one licensed nurse and one physician or pharmacist) shall independently double check the correct patient, dose, dose calculations, route of administration, and infusion pump settings at the bedside whenever an infusion of Alteplase is initiated and at handoff.. This check shall be documented in the medical record by both parties. Order changes involving infusion rates and/or pump settings be documented via current practices (i.e. flow sheet).

## I. **Epinephrine, Norepinephrine, Isoproterenol infusions** **Special processes to maximize safety**

1. A standard concentration shall be used for all continuous infusions
  - a. Epinephrine 8 micrograms/mL
  - b. Norepinephrine 16 micrograms/mL
  - c. Isoproterenol 4 micrograms/mL
2. In clinical situations where more concentrated infusions are required, the syringes/bags shall be affixed with a "Non-Standard Concentration" label.
3. Whenever feasible, all infusion bags of these medications shall be prepared by the pharmacy.
4. All infusions of these medications shall be affixed with a High alert drug label.

5. Two qualified healthcare professionals shall independently double check the correct patient, drug, dose, dose calculations, route of administration, and infusion pump settings at the bedside whenever a continuous infusion of one of these medications is initiated, at bag change and at handoff. Double checks shall be documented on the electronic or paper Medication Administration Record (MAR) in the medical record by both parties. Infusion rate changes do not require a double check. Order changes involving infusion rates and/or pump settings and the double checks involving bag change, and at hand off may be documented via current practices (i.e. flow sheet). Anesthesia practitioners will follow the High Alert Medication List Policy and Procedure for Anesthesia.

#### **J. Opiate/Narcotic infusions, including PCA therapy**

##### **Special processes to maximize safety**

1. Whenever feasible, preprinted orders shall be used for prescribing opiate/narcotic infusions and PCA therapy
2. The following standard concentrations shall be used for PCA therapy: morphine 1mg/ml, meperidine 10mg/ml, hydromorphone 0.2mg/ml.
3. In clinical situations where more concentrated infusions are required, the syringes/bags/reservoirs shall be affixed with a "Non-Standard Concentration" label.
4. If opiate/narcotic PCA syringes/bags/reservoirs are stored in Pyxis, a Clinical Data Category warning shall display upon drug removal, "High Alert Drug."
5. All opiate/narcotic infusion syringes/bags shall be affixed with a High Alert drug label. High Alert labels should be affixed to the exterior over packaging on commercially supplied syringes/bags to maintain tamper evidence.
6. When appropriate PCA pumps are available, all opiate/narcotic infusions shall be administered utilizing a PCA pump.
7. Two nurses shall independently double check the correct patient, dose, dose calculations, route of administration, and PCA pump settings at the bedside whenever an opiate/narcotic infusion bag is initiated, upon any change in dosage or infusion rate, at bag change and at handoff. Double checks shall be documented on the PCA Flow Sheet or the electronic or paper Medication Administration Record (MAR) in the medical record by both parties. Order changes involving infusion rates and/or pump settings and double checks involving bag change and at hand-off may be documented via current practices (i.e. flow sheet). Anesthesia practitioners will follow the High Alert Medication List Policy and Procedure for Anesthesia.

#### **K. Medications Administered via the Intrathecal Route**

##### **Special processes to maximize safety**

1. When compounding medications for intrathecal use, compounding personnel shall pause for verification and perform an independent double check in the Pharmacy by two health care professionals (e.g. two pharmacists, one pharmacist and one technician, one pharmacist and one nurse) after the preparation of the Intrathecal dose to assure it is prepared and labeled correctly. This check shall include a verification of the correct patient, drug, dose, dose calculations, and route of administration. This check shall be documented in the I.V. compounding records.
2. The Universal Protocol for "time out", including an independent double check, shall be conducted at the bedside immediately prior to the administration of all doses of Intrathecal medications by two qualified health care professionals (physician and registered nurse or pharmacist or two registered nurses). This check shall verify the correct patient, drug, dose, dose calculations, and route of administration. Double checks shall be documented in the medical record by both parties. Order changes involving infusion rates and/or pump settings should be documented via current practices (i.e. flow sheet). Anesthesia practitioners will follow the High Alert Medication List Policy and Procedure for Anesthesia.

