



## Getting Started Kit: Prevent Harm from High-Alert Medications

### How-to Guide

- Goal: Prevent harm from high-alert medications by implementing the changes in care recommended in this Guide.
- What Are High-Alert Medications
  - High-alert (or high-hazard) medications are medications that are most likely to cause significant harm to the patient, even when used as intended. The Institute for Safe Medication Practices (ISMP) reports that, although mistakes may not be more common in the use of these medications, when errors occur the impact on the patient can be significant
  - The Joint Commission on Accreditation of Healthcare Organizations (JCAHO), referring to ISMP's work, describes high-alert medications as those "that have the highest risk of causing injury when misused"  
(["High-Alert Medications and Patient Safety."](#) Joint Commission Sentinel Event Alert. November 19, 1999).

Institute for Safe Medication Practices

## ISMP's List of **High-Alert Medications**

**H**igh-alert medications are drugs that bear a heightened risk of causing significant patient harm when they are used in error. Although mistakes may or may not be more common with these drugs, the consequences of an error are clearly more devastating to patients. We hope you will use this list to determine which medications require special safeguards to reduce the risk of errors. This may include strategies like improving access to information about these drugs; limiting access to high-alert medications; using auxiliary labels and automated alerts; standardizing the ordering, storage, preparation, and administration of these products; and employing redundancies such as automated or independent double-checks when necessary. (Note: more than one independent double-check is not always the optimal error-reduction strategy and may not be practical for all of the medications on the list.)

Common Categories of Medications	Specific Medications
adrenergic agonists, IV (e.g., epinephrine, phenylephrine, norepinephrine)	calcium injection***
adrenergic antagonists, IV (e.g., propranolol, metoprolol, labetalol)	epinephrine (1/100), IV
anesthetic agents, general, inhaled and IV (e.g., propofol, ketamine)	heparin, subcutaneous and IV
antihypertensives, II (e.g., lisinase, enalapril)	magnesium sulfate injection
antithrombotic agents (anticoagulants) including warfarin, low-molecular-weight heparin, IV unfractionated heparin, Factor Xa inhibitors (the dabigatran), direct thrombin inhibitors (e.g., bivalirudin, argatroban, letebvirin), thrombolytic (e.g., alteplase, reteplase, tenecteplase), and glycoprotein IIb/IIIa inhibitors (e.g., eptifibatid)	metformin, oral non-vascular use
cardiothoracic agents	opium tincture
chemotherapeutic agents parenteral and oral	ropivacaine, IV
diuretics, hypertonic, 20% or greater	sulfonamide sodium for injection
dialysis solutions, peritoneal and hemodialysis	potassium chloride for injection concentrate
epidural or intrathecal medications	potassium phosphates injection
hypocytetics, oral	propofol, IV
inotropic medications, IV (e.g., digoxin, milrinone)	sodium chloride for injection, hypertonic (greater than 0.9% concentration)
liposomal forms of drugs (e.g., liposomal amphotericin B)	sodium chloride for injection, isotonic (including per-bottle) in containers of 100 mL or more
moderate sedation agents, IV (e.g., midazolam)	
moderate sedation agents, oral, for children (e.g., chloral hydrate)	
neuroleptics, IV, transdermal, and oral (including liquid concentrates, emulsions and sustained-release formulations)	
neuromuscular blocking agents (e.g., succinylcholine, rocuronium, vecuronium)	
radicontrast agents, IV	
total parenteral nutrition solutions	

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\*\*\*Although calcium injection should no longer be used, double-checks on this and other products of unopposed potassium injection orders is August 2008. For details, please visit [www.information.org](http://www.information.org).

**Background**

Based on error reports submitted to the USA/ISMP Medication Errors Reporting Program, reports of harmful errors in the literature, and direct from practitioners and safety experts, ISMP created and periodically updates a list of potential high-alert medications. During February and April 2007, 770 practitioners responded to an ISMP survey designed to identify which medications were most frequently considered high-alert drugs by individuals and organizations. Further, to ensure relevance and completeness, the clinical staff at ISMP, members of our advisory board, and safety experts throughout the US were asked to review the potential list. This list of drugs and drug categories reflects the collective thinking of all who provided input.

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[www.ismp.org](http://www.ismp.org)

# Heparin

## Suggested Changes:

- ★ Implement weight-based heparin protocol; limit these to no more than one or two protocols.
  - ★ Use preprinted order forms or ordering protocols.
- 🌐 Ensure that heparin dosing protocols account for the use of thrombolytics (eg. TPA) and glycoprotein IIb/IIIa inhibitors (eg. Reopro).
- ★ Ensure that heparin cannot be administered within 6-12 hours of a dose of LMWH.
- ★ Use standard concentrations in OR, ER, and the ICUs.
- 🌐 Separate like products when using or storing.
- 🌐 Dispense the anticoagulant medication from pharmacy only.
- 🌐 Use smallest size package, concentration, and dose for floor stock.

# Heparin

## Changes Designed to Ensure Standardization:

- 🌐 Implement standardize protocols and dosing.
- ★ Establish guidelines to hold heparin and provide reversal therapy for heparin over-anticoagulation.
- ★ Simplify by minimizing available concentrations.
  - ★ Eliminate the use of 10,000 unit/mL vials

# Warfarin

## Suggested Changes:

- ★ Because warfarin has such a narrow therapeutic index, appropriate dosing and monitoring are critical. Since ongoing therapy occurs in the ambulatory setting, **engaging patients** by ensuring that they understand how to take the medication, other medications that should be avoided, and identification of symptoms that indicate harm is critical.
- ★ Simplify by minimizing available concentrations and strengths of oral formulations.

# Warfarin

## Changes Designed to Ensure Standardization:

- ★ Standardize protocols and dosing.
  - 🌐 Standardized protocols for the initiation and maintenance of warfarin therapy including Vitamin K dosing guidelines.
  - 🌐 Develop a protocol, based on evidence, to discontinue and restart warfarin perioperatively.
- 🌐 Make information available; for example, improve access to lab results and/or use of point-of-care testing in order to determine doses.
- ★ Ensure appropriate monitoring and dose management through a centralized anticoagulation service.

# Warfarin

## Changes Designed to Ensure Adequate Monitoring:

- 🌐 Make lab results available on the unit within two hours, or monitor at the bedside.
- ★ Plot INR results versus dose changes on run chart or control chart.

# Narcotics

## Suggested Changes:

- ★ Standardize protocols for the initiation and maintenance of pain management.
- ★ Use appropriate monitoring for adverse effects of narcotics and opiates.
- ★ Make available protocols and reversal agents that can be administered without additional physician orders.
- 🌐 Consult a pain specialist if the managing physicians are not knowledgeable about pain control. Pain specialists vary in different settings; they may be specially trained nurses, pharmacists, physicians, or others.
- 🌐 Increase the use of non-pharmacologic intervention for pain and anxiety.
- ★ Set up all pumps to be programmed with an independent double-check from pharmacy or nursing staff.
- ★ Perform independent double-checks on the unit for PCA and epidural narcotics.
- 🌐 Minimize or eliminate multiple drug strengths where possible.

# Narcotics

## Changes Designed to Ensure Standardization:

- ★ Use protocols and pre-printed orders where possible for PCA, postoperative pain management, and sedation, as well as for epidural, intrathecal pain management.
- 🌐 Include dose calculations, maximum bolus doses, monitoring guidelines, and options for non-opioid analgesics.
- ★ Establish a standard naloxone regimen that can be given before calling physician.

# Narcotics

## Changes Designed to Ensure Adequate Monitoring:

- ★ Standardize monitoring protocols (including documentation) of vital signs and pain score following each dose. Serious over-sedation is seldom due to overt error but is nonetheless quite preventable. Efforts must be interdisciplinary and include anesthesia and recovery room.

Date \_\_\_\_\_ Time \_\_\_\_\_

Y/N orders with a \_\_\_\_\_ must be checked by someone. All orders with a /, are activated.)

**1. PCA Orders:**

- Select agent and complete information below.
- These orders will supersede any previous standing orders for agents selected below.
- No IM, IV, or PO analgesics or sedatives unless otherwise indicated by prescriber / written order for PCA.
- Notify prescriber / nurse if the maximum dose is reached prior to the 4-hour time interval pain period.
- If "continuous / basal dose" is selected with PCA, it will include "normal-use-dose" or "regular" as outlined below.
- All orders with a \_\_\_\_\_ must be checked to be activated.

Preparation	Morone	Hydrocodone (3-AH82)	Fentanyl	Oxycodone
	Maximum Dose (mg)	Maximum Dose (mg)	Maximum Dose (mg)	Maximum Dose (mg)
Initial Loading Dose	6.1 (0.07)	0.2 (0.3)	28 (0.07)	10 (0.07)
PCA Dose	0.2 (0.02)	0.1 (0.02)	0.1 (0.02)	0.1 (0.02)
Continuous / Basal Dose	5 (0.05)	0.2 (0.02)	10 (0.02)	10 (0.02)
Concentration / Maximum Dose	1 mg/mL	0.1 mg/mL	0.1 mg/mL	0.1 mg/mL
Maximum Dose / Day	2 (0.02)	1 (0.01)	10 (0.02)	10 (0.02)

**3. Patient Monitoring:**

- check these parameters a vital signs, pain scale, sedation scale, and oxygen saturation at the following schedule
- upon initiation of PCA, q2r x 2 after PCA initiated on, then q4r for the duration of therapy.
- Pulse oximetry monitoring is required for PCA with basal infusion of any opioid.

**4. Supplemental Medications: NOTE: "Sedative" effects of these IV medications may be additive**

- If respiratory rate less than 8, stop PCA, max rocuronium (MIVACUR) 0.4 mg in 10 mL in a syringe. Give 0.02 mg (0.5 mL IV slowly over 2 minutes. If no response within 1 - 2 minutes, repeat dose to a total of 0.5 mg or 20 mL.
- Monitor oxygen saturation. Notify physician.
- If nausea and / or vomiting occur.
- Give promethazine (PROMETHAZINE) 6.25 - 12.5 mg PO or IV q4r PRN.
- Other.
- If pruritus occurs, give chlorazepate (ORANOLIN) 20 mg PO or IV q4r PRN.

**5. Supplemental Analgesic:**

- See below for (ORANOLIN) 10 mg IM/IV q4r for 50 hours PRN pain in the patient 18 years and over, or for patients with renal insufficiency, maximum = 40 mg in 24 hours.
- Other.



MD Signature \_\_\_\_\_ MD # \_\_\_\_\_



Physician Use Only: \_\_\_\_\_ Patient Name: \_\_\_\_\_ Patient Identifier: \_\_\_\_\_

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<b>Date</b>		Order Set and Guidelines for Pediatric Patient Controlled Analgesia (PCA):	
<b>Time</b>		Only for patients of developmental age of 5 years or greater. Basal only okay for children less than 5 years! (All orders with a <input type="checkbox"/> must be checked to activate. All orders with a <input type="checkbox"/> are activated.)	
1. Patient IDEAL body weight (BW) _____ kg		Resident: _____ Beeper: _____	
2. Attending: _____		Beeper: _____	
3. Allergies: <input type="checkbox"/> No known drug allergies			
Allergy:	Describe Reaction:	Allergy:	Describe Reaction:
Allergy:	Describe Reaction:	Allergy:	Describe Reaction:
4. Discontinue all other currently ordered opioid analgesics			
5. Remember you may need to consider ideal body weight when initiating this infusion			
6. Please select a dose, lockout interval, basal infusion rate if needed, and one hour limit			
7. Basal infusion not recommended in opioid naive patients			
8. Nursing Orders:			
a. Please record pain scale and document pain assessments with vital signs or a minimum of q4hr while awake			
b. Continuous pulse oximetry			
c. Vital signs q2hr x 2 then q4hr if patient on pediatric floor			
d. Respiratory rate parameters:			
If respiratory rate less than _____ and/or patient is difficult to arouse with mild to moderate stimulation: Stop PCA, call physician, check vital signs, and loss of consciousness at least every 15 – 30 minutes until stabilized.			
If respiratory rate less than _____ give naloxone _____ mg (0.002 – 0.005 mg/kg, max 0.2 mg) IV every 2 min until respiratory rate is re-established.			
9. Medications:			
<input type="checkbox"/> morphine Interval Dose = _____ mg (0.01 – 0.02 mg/kg; initial max dose of 1 mg) IV			
Lockout Interval = _____ minutes (examples: 6, 10, 12, 15 minutes)			
Basal Infusion Rate = _____ mg/kg/hr (0.01 – 0.025 mg/kg/hr; max 1.5 mg/hr) IV			
One hour dose limit = _____ mg/hr (interval dose x # doses/hr plus the basal rate)			
In general, one-hour dose limit should not exceed 0.2 mg/kg. In opioid naive patients, 0.1 mg/kg is appropriate maximal one-hour limit.			
<input type="checkbox"/> fentanyl Interval Dose = _____ mcg (0.1 – 0.2 mcg/kg; initial max dose of 10 mcg) IV			
Lockout Interval = _____ minutes (examples: 6, 10, 12, 15 minutes)			
Basal Infusion Rate = _____ mcg/kg/hr (0.1 – 0.2 mcg/kg/hr; max 12.5 mcg/hr) IV			
One hour dose limit = _____ mcg/hr (interval dose x # doses/hr plus the basal rate)			
In general, one-hour dose limit should not exceed 2 mcg/kg. In opioid naive patients, 1 mcg/kg is appropriate maximal one-hour limit.			
MD Signature _____		MD # _____	
(continued on next page)			
Pharmacy Use Only: 081212-A-1		Patient Name: _____ Patient Identification #: _____	
 <b>Children's</b> HOSPITAL - L.I.		 RX0001	
<b>Physician's Orders</b> (page 1 of 2) Distribution: Medical Record – Be sure to fax to Pharmacy.		# printed electronically, all pages must be checked. Fax: 110358 P081212-A	

<b>Date</b>		Order Set and Guidelines for Pediatric Patient Controlled Analgesia (PCA):	
<b>Time</b>		Only for patients of developmental age of 5 years or greater. Basal only okay for children less than 5 years! (All orders with a <input type="checkbox"/> must be checked to activate. All orders with a <input type="checkbox"/> are activated.)	
9. Medications (continued):			
<input type="checkbox"/> hydromorphone Interval Dose = _____ mcg (1 – 2 mcg/kg; initial max dose of 100 mcg) IV			
Lockout Interval = _____ minutes (examples: 6, 10, 12, 15 minutes)			
Basal Infusion Rate = _____ mcg/kg/hr (1 – 2 mcg/kg/hr; max 150 mcg/hr) IV			
One hour dose limit = _____ mcg/hr (interval dose x # doses/hr plus the basal rate)			
In general, one-hour dose limit should not exceed 20 mcg/kg. In opioid naive patients, 10 mcg/kg is appropriate maximal one-hour limit.			
10. Adjuvant Medications:			
Pain:			
<input type="checkbox"/> ketorolac (TORADOL) _____ mg (0.5 mg/kg/dose; maximum dose 30 mg) IV q4hr x 4 days			
Avoid in patients with bleeding diathesis, thrombocytopenia, renal dysfunction, or with gastritis/history of ulcer. Caution if history of allergic reaction to aspirin or NSAIDs.			
<input type="checkbox"/> acetaminophen _____ mg (15 mg/kg/dose; maximum dose 650 mg) PO q4hr PRN mild pain			
<input type="checkbox"/> acetaminophen _____ mg (20 mg/kg/dose; maximum dose 650 mg) PR q4hr PRN mild pain			
<input type="checkbox"/> oxycodone _____ mg (0.05 – 0.15 mg/kg/dose; maximum dose 5 mg) PO q4hr PRN moderate pain			
Pruritis (itching):			
<input type="checkbox"/> naloxone (NARCAN) _____ mcg/kg/hr (0.25 – 2 mcg/kg/hr) IV continuous infusion. (Titrate to effect by 0.5 mcg/kg/hr every 2 hours to a max of 2 mcg/kg/hr)			
Nausea/Vomiting:			
<input type="checkbox"/> ondansetron (ZOFIRAN) _____ mg (0.15 mg/kg/dose; max 4 mg) IV q4hr PRN nausea/vomiting			
Bowel Regimen for opioid induced constipation:			
<input type="checkbox"/> docusate sodium (COLACE) _____ mg (2.5 mg/kg/dose; max 100 mg) PO BID			
<input type="checkbox"/> polyethylene glycol (MIRALAX) _____ g (0.5 g/kg/dose; max 17 g) PO daily (Mix well with water, juice, or soda prior to administration)			
MD Signature _____		MD # _____	
(continued on next page)			
Pharmacy Use Only: 081212-A-2		Patient Name: _____ Patient Identification #: _____	
 <b>Children's</b> HOSPITAL - L.I.		 RX0001	
<b>Physician's Orders</b> (page 2 of 2) Distribution: Medical Record – Be sure to fax to Pharmacy.		# printed electronically, all pages must be checked. Fax: 110358 P081212-A	

# Insulin

## Suggested Changes:

- ★ Require an independent double-check of the drug, concentration, dose, pump settings, route of administration, and patient identity before administering all IV insulin.
- ★ Use pre-typed diabetic and insulin infusion orders.
- ★ Separate look-alikes and sound-alikes by labeling, by time, and by distance.
- ★ Prepare all infusions in the pharmacy and standardize to a single concentration of IV-infusion insulin.
- 🌐 Have patients manage their own insulin if they are capable.
- ★ Coordinate meal and insulin times.

# Insulin

## Changes Designed to Ensure Standardization:

- ★ Eliminate the use of sliding insulin dosage scales; if a sliding scale is used, standardize it through the use of a protocol and preprinted order form or computer order set that clearly designates the specific increments of insulin coverage.
- 🌐 Standardize to single concentration of IV infusion insulin.
- ★ Use a diabetic management flow sheet.

# Insulin

## Changes Designed to Ensure Adequate Monitoring:

- 🌐 Ensure appropriate monitoring through more rapid testing of blood sugars.
- 🌐 When prescribing insulin, include or refer to defined standards for laboratory testing and clinical monitoring of patients.

# Insulin

## Changes Designed to Ensure Better Partnering with Patients and Families:

- 🌐 Allow and encourage patient self-management (or parents for young pediatric patients) when patients and parents are capable and willing.
- ★ Encourage patients to question doses and timing of insulin administration.

**Date:** \_\_\_\_\_ **Subcutaneous Insulin Orders**

**Time:** \_\_\_\_\_ (All orders with a  must be checked to activate. All orders with a  are activated.)

**1. Blood glucose monitoring** (choose one of the following):

before each meal  before each meal and at bedtime  q8hr

a. If blood glucose less than 50 mg/dL or 50 - 70 mg/dL with symptoms such as confusion, agitation, palpitations, tremors, sweating, or somnolence:

- Call MD for further instructions
- Give 4 ounces of orange juice or 12.5 g D50W IV x 1 dose
- Recheck blood glucose every 15 minutes after giving orange juice or D50W until new orders received

b. If blood glucose 50 - 70 mg/dL, but no symptoms:

- Call MD for further instructions and recheck blood glucose in 15 minutes
- If blood glucose decreasing or if patient symptomatic, give 4 ounces of orange juice or 12.5 g D50W IV x 1 dose and obtain new orders for blood glucose monitoring from MD
- If blood glucose increasing, obtain orders from MD for treatment and blood glucose monitoring

**2. Standard insulin regimens** (select all that apply)

**BASAL INSULIN** — choose one of the following

insulin glargine (LANTUS) - consider 10 - 20% dose reduction if patient is a type 2 diabetic and NPO  
 \_\_\_\_\_ units subcutaneously daily at \_\_\_\_\_ am  
 \_\_\_\_\_ units subcutaneously daily at \_\_\_\_\_ pm (once daily bedtime injection is preferred)

insulin detemir (LEVEMIR) - consider 10 - 20% dose reduction if patient is a type 2 diabetic and NPO  
 \_\_\_\_\_ units subcutaneously daily at \_\_\_\_\_ am  
 \_\_\_\_\_ units subcutaneously daily at \_\_\_\_\_ pm

NPH insulin (HUMULIN N)  
 \_\_\_\_\_ units subcutaneously daily at \_\_\_\_\_ am (only 1/2 of am dose if patient NPO in am)  
 \_\_\_\_\_ units subcutaneously daily at \_\_\_\_\_ pm

**PRE-MIXED INSULIN** — choose one of the following

insulin lispro/insulin protamine (HUMALOG MIX 75/25) - not recommended for patients who will be NPO  
 \_\_\_\_\_ units subcutaneously within 15 minutes of each breakfast meal  
 \_\_\_\_\_ units subcutaneously within 15 minutes of each lunch meal (not usually given at this time)  
 \_\_\_\_\_ units subcutaneously within 15 minutes of each dinner meal

NPH insulin 70%/regular insulin 30% (HUMULIN 70/30) - not recommended for patients who will be NPO  
 \_\_\_\_\_ units subcutaneously 30 minutes before each breakfast meal  
 \_\_\_\_\_ units subcutaneously 30 minutes before each lunch meal (not usually given at this time)  
 \_\_\_\_\_ units subcutaneously 30 minutes before each dinner meal

(Standard Insulin Regimens continued on next page)

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**Date:** \_\_\_\_\_ **Subcutaneous Insulin Orders**

**Time:** \_\_\_\_\_ (All orders with a  must be checked to activate. All orders with a  are activated.)

**2. Standard insulin regimens** (select all that apply) (continued)

**NUTRITIONAL (PRANDIAL) INSULIN**

Receiving oral diet (choose one of the following)

insulin aspart (NOVOLOG) — HOLD IF PATIENT NPO  
 \_\_\_\_\_ units subcutaneously within 15 minutes of each breakfast meal  
 \_\_\_\_\_ units subcutaneously within 15 minutes of each lunch meal  
 \_\_\_\_\_ units subcutaneously within 15 minutes of each dinner meal

regular insulin (HUMULIN R) — HOLD IF PATIENT NPO  
 \_\_\_\_\_ units subcutaneously 30 minutes before each breakfast meal  
 \_\_\_\_\_ units subcutaneously 30 minutes before each lunch meal  
 \_\_\_\_\_ units subcutaneously 30 minutes before each dinner meal

Receiving continuous enteral nutrition  
 regular insulin (HUMULIN R) \_\_\_\_\_ units subcutaneously q8hr (hold if tube feedings stopped)

**3. Correction insulin** (optional)

**Blood glucose monitoring:**  before each meal  before each meal and at bedtime  q8hr

**Insulin type (choose one):**  regular insulin (HUMULIN R)  insulin aspart (NOVOLOG)

**NOTE: IF NUTRITIONAL and CORRECTION INSULIN ordered together, administer CORRECTION INSULIN WITH NUTRITIONAL INSULIN AT THE SAME TIME.**

**NOTE: NUTRITIONAL and CORRECTION INSULIN should be the same insulin type.**

Pre-meal blood glucose (mg/dL)	Insulin Administration Instructions			
below 50	i. Call MD for further instructions ii. Give 4 ounces of orange juice or 12.5 g D50W IV x 1 dose iii. Recheck blood glucose every 15 minutes after giving orange juice or D50W until new orders received			
50 - 70 with symptoms such as confusion, agitation, palpitations, tremors, sweating, or somnolence	i. Call MD for further instructions and recheck blood glucose in 15 minutes ii. If blood glucose decreasing or if patient symptomatic, give 4 ounces of orange juice or 12.5 g D50W IV x 1 dose and obtain new orders for blood glucose monitoring from MD iii. If blood glucose increasing, obtain orders from MD for treatment and blood glucose monitoring			
71 - 150	<input type="checkbox"/> Low-dose scale (usually for type 1 diabetics)	<input type="checkbox"/> Medium-dose scale (usually for type 1 diabetics)	<input type="checkbox"/> High-dose scale (usually for overweight/obese type 2 diabetics)	<input type="checkbox"/> Individualized scale
151 - 200	Name: _____	Name: _____	Name: _____	Name: _____
201 - 250	1 unit	1 unit	2 units	2 units
251 - 300	2 units	3 units	3 units	4 units
301 - 350	3 units	4 units	4 units	5 units
351 - 400	4 units	5 units	5 units	6 units
401 - 450	5 units	6 units	6 units	7 units
451 - 500	6 units	7 units	7 units	8 units
501 - 600	7 units	8 units	8 units	9 units
601 - 700	8 units	9 units	9 units	10 units
701 - 800	9 units	10 units	10 units	11 units
801 - 900	10 units	11 units	11 units	12 units
More than 900	11 units	12 units	12 units	13 units

MD Signature: \_\_\_\_\_ MD #: \_\_\_\_\_  
 Pharmacy Use Only: 058420-B-2 Patient Name: \_\_\_\_\_ Patient Identification #: \_\_\_\_\_

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# Sedatives

## Suggested Changes:

- Stock and prescribe only one concentration of oral moderate sedation agents.
- Establish preprinted order forms for ordering narcotics and sedatives.
- Monitor all children who have received chloral hydrate for pre-operative sedation before, during, and after the procedure.
- Have age- and size-appropriate resuscitation equipment and reversal agents available wherever the medications are administered, and during procedures that are performed when the patient is under sedation.

# Sedatives

## Changes Designed to Ensure Adequate Monitoring:

- Monitor patients for respiratory depression, as evidenced by decreased oxygen saturation or increased CO<sub>2</sub> levels, by using pulse oximeters and capnographers.
- Integrate documentation of medications and patient vital sign data to recognize predictable and preventable trends reflected by vital signs, patient lab values, and drug interactions (respiratory rate, hypotension, increased level of sedation).