

# CAH PATIENT SAFETY SUMMIT 2011

LAKE BUTLER HOSPITAL  
HAND SURGERY CENTER

**Presented by:**

Susan Moulder, RPh, CPh  
*Director of Pharmacy*

Johnette Davis, RN, MSN  
*Director of Nursing*

# Members of the Patient Medication Safety Committee:

Director of Pharmacy

Director of Nursing

Medication Nurse

Risk Manager

Staff Development Coordinator

Performance Improvement Director

CEO

CFO

We feel that the most important factor in the improvements that we have made has been the formulation of the Patient Medication Safety Committee. We developed the committee in 2009 after presentation at the 2009 summit. We meet at least every 2 weeks for approximately 2 hours. We review all medication variances and near misses as well as reviewing new/revised Policy and Procedure's related to medications. We plan and implement the improvements as suggested by Tom and Almut.

# Patient Safety

**Working together to improve  
Patient Safety**



# Institute for Safe Medication Practices

## Form filled out for every reported medication variance and/or near miss

### ASSESS - ERR™

**Medication System Worksheet**

Patient MR# \_\_\_\_\_ Incident # \_\_\_\_\_  
 (if error reached patient) √ if no callback identified: \_\_\_\_\_  
 Date of error: \_\_\_\_\_ Date information obtained: \_\_\_\_\_ Patient age: \_\_\_\_\_

Drug(s) involved in error: \_\_\_\_\_

- Non-formulary drug(s)?  Yes  No
- Drug sample(s)?  Yes  No
- Drug(s) packaged in unit dose/unit of use?  Yes  No
- Drug(s) dispensed from pharmacy?  Yes  No
- Error within 24 hours of admission, transfer, or after discharge?  Yes  No
- Did the error reach the patient?  Yes  No
- Source of IV solution:  Manufacturer premixed solution  Pharmacy IV admixture  Nursing IV admixture

Brief description of the event: (what, when, and why) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Possible causes	Y/N	Comments
<b>Critical patient information missing?</b> (age, weight, allergies, VS, lab values, pregnancy, patient identity, location, renal/liver impairment, diagnoses, etc.)		
<b>Critical drug information missing?</b> (outdated/absent references, inadequate computer screening, inaccessible pharmacist, uncontrolled drug formulary, etc.)		
<b>Miscommunication of drug order?</b> (illegible, ambiguous, incomplete, misheard, or misunderstood orders, intimidation/faulty interaction, etc.)		
<b>Drug name, label, packaging problem?</b> (look/sound-alike names, look-alike packaging, unclear/absent labeling, faulty drug identification, etc.)		
<b>Drug storage or delivery problem?</b> (slow turn around time, inaccurate delivery, doses missing or expired, multiple concentrations, placed in wrong bin, etc.)		
<b>Drug delivery device problem?</b> (poor device design, misprogramming, free-flow, mixed up lines, IV administration of oral syringe contents, etc.)		
<b>Environmental, staffing, or workflow problems?</b> (lighting, noise, clutter, interruptions, staffing deficiencies, workload, inefficient workflow, employee safety, etc.)		
<b>Lack of staff education?</b> (competency validation, new or unfamiliar drugs/devices, orientation process, feedback about errors/prevention, etc.)		
<b>Patient education problem?</b> (lack of information, noncompliance, not encouraged to ask questions, lack of investigating patient inquiries, etc.)		
<b>Lack of quality control or independent check systems?</b> (equipment quality control checks, independent checks for high alert drugs/high risk patient population drugs etc.)		

Did the patient require any of the following actions after the error that you would not have done if the event had not occurred?  
 Testing  Additional observation  Gave antidote  Care escalated (transferred, etc.)  Additional LOS  Other \_\_\_\_\_

Patient outcome: \_\_\_\_\_  
 \_\_\_\_\_

1) Replace current crash carts with a commercially manufactured emergency cart. As a component of the new emergency cart, purchase and implement a standardized medication tray that effectively separates drugs and allows for effective labeling to prevent errors.

- Purchased new crash carts for the Nursing Station and Emergency Room
- Stocked crash carts according to ACLS guidelines
- Separated and labeled all medications to prevent errors
- Extra trays stocked and ready for easy exchange








## 2. Implement a reliable system that ensures opened multi-dose injectable vials are labeled with the expiration date

- Purchased auxiliary labels to be placed on all multidose vials to remind staff to date and initial when opened
- Sent memo to all staff stressing the importance of dating and initialing any opened MDV
- Considering placing label over top of vial as a reminder

# LABEL

<b>DATE OPENED</b> 	<b>EXP. DATE</b> 	<b>INITIAL</b> 
---	---	---

3. Remove promethazine 50mg/ml injectable vials from the Pharmacy and delete from the Formulary

- **ISMP recommendation: Limit concentration.** Since 25 mg/mL is the highest concentration of promethazine that can be given IV, stock only this concentration (not the 50 mg/mL concentration).
- Followed ISMP recommendation to remove 50mg Promethazine injection from the Formulary and our Medical Staff implemented a policy that eliminates the use of promethazine IV. It is now only allowed to be administered deep IM

4. Apply external medication labels to all drawers of the MDG automated dispensing cabinet

- Applied external medication labels to all drawers of the MDG automated dispensing cabinet.



Atorvastatin TAB 20mg (Lipitor)***	Metoclopramide TAB 10mg (Reglan)***	Tiotropium (Spiriva) Capsules for Inhalation***
Acetaminophen and Tramadol (Ultracet 3.75mg Tab)	Fluorouracil Sodium CAP 100mg (Fluorour)***	Dicyclanide AMP 10mg/mL 2ml (Benvyl)***
Nicotine Transdermal Patch 14mg (Nicoterm CQ)***		Atenolol TAB 25mg (Tenormin)***
Abutand MD (ProAir HFA) 8.5g***	SSD TOP 1% Cream 20gm (Skladene)***	Nicotine (Nicoderm CQ) 21mg Transdermal Patch***
Hydrazine VIAL 30mg/mL 1ml (Vialin)***	Ketorolac VIAL 30mg/mL 1mL (Toradol)***	Ketorolac VIAL 60mg/2mL 2mL (Toradol)***
Multi-Vitamin Tablets***	Methocarbamol TAB 500mg (Robaxin)***	Loperamide CAP 2mg (Imodium)***
Diphenhydramine VIAL 50mg/mL 1mL (Benadryl)***	Promethazine AMP 25mg (Phenergan)***	Valiartan TAB 160mg (Diovan)***
Acetaminophen TAB 325mg (Tylenol)***	Glipizide TAB 5mg (Glucotrol)***	Promethazine TAB 25mg (Phenergan)***
Hydroxyzine Capsule 25mg (Atarax, Vistaril)***	Diphenhydramine 25mg Cap (Benadryl)***	Aspirin TAB 325mg EC (Ecotrin)***
Aspirin TAB 81mg EC (Ecotrin)***	Acetaminophen TAB 500mg (Tylenol-ES)***	Megestrol SUSP 400mg 10mL (Megace)***
Nitroglyc DL TAB 6.4mg 25ct (Nitrostat DL)***	Budesonide (Pulmicort Respules) 0.25mg Amp Respules 2mL	Acetylcysteine (NH 20% (200mg/mL) 4mL (Mucomyst)***
Hydroxyzine 25mg 1ml (Vistaril)***	Sod Chloride Inj 0.9% 3mL (Saline)***	Budesonide (Pulmicort Respules) 0.5mg 2mL***
Rystatin (Myristatin) 0.3% 500.000/500ml***	Metoclopramide VIAL 10mg/2mL (Reglan)***	Clonidine TAB 0.1mg (Catapres)***
Warfarin Sodium TAB 2.5mg (Coumadin)***	Propranolol TAB 20mg (Deltasone)***	Ramipril CAP 15mg (Alacep)***
Carvedilol TAB 12.5mg (Coreg)***	Neosporin Monoband TAB 35mg ER (Neosporin)***	Warfarin Sodium TAB 1mg (Coumadin/Jarvis)***
Metformin HCL TAB 500mg (Glucophage)***	Aspirin CHEW TAB 81mg (Baby ASA)***	Ceftriaxone VIAL 1gm (Rocephin)***
Propranolol 5mg Tab (Deltasone)***	Amoxicillin TAB 5mg (Norvax)***	Lisinopril TAB 2.5mg (Prinivil/Zestrin)***
Lisinopril TAB 10mg (Prinivil/Zestrin)***	Aspirin TAB 200mg (Zitromax)***	Lactulose Solution 10g 150mL UQ***
Desferal 50% 25mL 500mg (HIGH ALERT)***	Lactulose Solution 10g 150mL UQ***	Carvedilol TAB 3.125mg (Coreg)***
Azithromycin VIAL 500mg (Zitromax)***	Clonidine CAP 125mg ER (Cardium SD)***	Vincamin (Vincamin) 1g Vial***
Morphine Amp 10mg/5mL (Morphine)***	Morphine TAB 1mg (Morphine)***	Propranolol Chloride, Ext. Rel. CAP 10mg/2mL (Key-Cel, Kior-Cel)***
Metformin ER 1000mg (Glucophage)***	Sensipar TAB 10mg (Lactitol)***	Morphine 25mg Tab (Liposol)***
Hydroxyzine (Hydroxyzine) CAP 25mg/5mL***	Polysorb 250g (Polysorb) Paste 11g***	Clonidine TAB 0.1mg***

Medical Customer Support

Epinephrine AMP 1mg/1ml (Adrenalin)***	Glyburide TAB 5mg (Diabeta)***	Labelal (Labelal)***
Cyclobenzaprine TAB 10mg (Flexeril)***	Nitroglycerin Transdermal Patch 0.2mg/hr (Nitro-Dur, Nitro)***	Hydrochloric (Hydrochloric)***
Multivitamin HCL TAB 850mg (Glucophage)***	Levothyroxine TAB 25mcg (Synthroid, Levoxyl)***	Levo (Levo)***
Mucosolone E.R. 600mg Tablets (Mucosolone)***	Mecizine TAB 25mg (Antivert)***	Omeprazole (Omeprazole)***
Diltiazem 120mg/5mL (Diltiazem)***	Nitroglycerin Transdermal Patch 0.2mg/hr (Nitro-Dur, Nitro)***	Mupirocin (Mupirocin)***
Methylprednisolone VIAL 120mg/2mL (Solu-Medrol)***	Dexameth. Sod. Phos 4mg/mL 1mL (Decadron)***	Phenytoin (Phenytoin)***
Methylprednisolone VIAL 40mg/mL 1mL (Solu-Medrol)***	Ranitidine 150mg Tab (Zantac)***	Ranitidine (Ranitidine)***
Furosemide VIAL 40mg/10mL (Lasix)***	Gabapentin (Neurontin) 300mg Capsule***	Ceftriaxone (Ceftriaxone)***
Docusate Sodium CAP 100mg (Colace)***	Ibuprofen TAB 800mg (Motrin)***	Ibuprofen TAB 200mg (Motrin)***
Ibuprofen TAB 800mg (Motrin)***	Furosemide TAB 20mg (Lasix)***	Bisacodyl SUPP (Bisacodyl)***
Furosemide TAB 40mg (Lasix)***	Bisacodyl TAB 5mg EC (Dulcolax)***	Doxycycline (Vibram)***
Plavix TAB 75mg (Clopidogrel)***	Ramipril CAP 2.5mg (Altace)***	Sulfamethoxazole (Bactrim)***
Acetaminophen/Cocaine TAB 300mg/30mg (Tylenol #3)***	Ambien TAB 5mg (Zolpidem)***	Diazepam TAB 5mg (Valium)***
Diphenoxyl/Atropine TAB 2.5/0.025mg (Lomotil)***	Hydrocodone/APAP TAB 5mg/500mg (Anexia, Lortab, Vicodin)***	Hydrocodone w/ 7.5mg/500mg (Anexia, Lortab, Vicodin)***
Oxycodone/Acetaminophen TAB 5/325mg (Endocet/Percoct)***	Alprazolam TAB 0.5mg (Xanax)***	Lorazepam TAB 1mg (Ativan)***
Meperidine Tablets 50mg (Demerol)***	Morphine Sulfate TAB 15mg IR (MSIR)***	Chlordiazepoxide (Librium)***
Diazepam SYRINGE 10mg/2mL (Valium)***	Hydromorphone 2mg Tablet (Dilaudid)***	Lorazepam INJ 2mg (Ativan)***
Meperidine SYRINGE 100mg/mL 1mL (Demerol)***	Morphine SYRINGE 10mg/1mL (Morphine)***	Meperidine SYRINGE 75mg (Demerol)***
Nalbuphine (Nubain) 10mg Amp 1mL***	Morphine SYRINGE 4mg/1mL (Morphine)***	Antispasmodic (Donnatal)***
Ambien TAB 10mg (Zolpidem)***		Fentanyl PATCH 75mcg (Duragesic)***

5. Develop, implement, and monitor use of standardized pre-printed order forms for unfractionated heparin, warfarin reversal, venous thromboembolism (VTE) prophylaxis, and subcutaneous insulin therapy with sliding scale component.

- Developed and implemented the use of standardized pre-printed order forms for warfarin reversal, VTE prophylaxis and SC Insulin therapy with sliding scale component.
- Currently we are developing an unfractionated heparin form

# Warfarin Reversal

## Warfarin Dosing Guidelines

1. To initiate a warfarin dosing, choose the target INR range appropriate for the individual.
  - a. 1.8 – 2.5 (Orthopedic prophylaxis)
  - b. 2 – 3 (Standard anticoagulation)
  - c. 2.5 – 3.5 (Mitral valve replacement)
2. Choose the initial dose.
  - a. Standard - 5mg
  - b. Low - 2.5mg (A low dose is suggested for patients greater than or equal to 75 years old and/or receiving Bactrim/Septera or amiodarone or metronidazole).
3. Collect a PT/INR prior to the first dose of warfarin and daily afterward starting day 2.
4. Use Warfarin reversal guidelines.

WARFARIN DOSING TABLE					
Day	Targeted INR			Dosing	
	(1.8 - 2.5)	(2 - 3)	(2.5 - 3.5)	Standard	Low
1				5mg	2.5mg
2, 3	below 1.4	below 1.6	below 1.8	5mg	2.5mg
	1.4 - 1.5	1.6 - 1.8	1.8 - 2	5 mg	2.5 mg
	1.6 - 1.8	1.9 - 2	2.1 - 2.5	4 mg	2 mg
	1.9 - 2.5	2.1 - 3	2.6 - 3.5	2.5 mg	1mg
	Above 2.5	Above 3	Above 3.5	See Reversal Guidelines	See Reversal Guidelines
4 and on	below 1.2	below 1.6	below 1.8	↑ previous day dose by 4 mg	↑ previous day dose by 2 mg
	1.3 - 1.7	1.6 - 1.9	1.8 - 2.4	↑ previous day dose by 2 mg	↑ previous day dose by 1 mg
	1.8 - 2.5	2 - 3	2.5 - 3.5	Repeat last dose given	Repeat last dose given
	2.6 - 2.9	3.1 - 3.9	3.6 - 4.5	↓ previous day dose by 1mg	↓ previous day dose by 1 mg
	above 2.9	above 3.9	above 4.5	See Reversal Guidelines	See Reversal Guidelines

\* After any dose change, wait 2 days instead of one for the next dose change. (Example: INR = 1.1 on day 4, then increase dose by 2mg then wait to make any further changes until day 6).

Warfarin Reversal Guidelines	
INR	Action
Less than 5 & no significant bleeding	Hold Warfarin and resume at lower dose when INR is within the appropriate range. Vitamin K not indicated.
Greater than or equal to 5 and less than 9 & no significant bleeding	Hold Warfarin 1 or 2 doses and resume at lower dose when INR is within the appropriate range.
Above 9 & no significant bleeding	Hold Warfarin doses. Give Vitamin K 2.5 – 5 mg PO (expected reduction in 24 - 48hr). Vitamin K can be repeated. Resume warfarin at lower dose.
Any elevated INR & serious bleeding	Call Physician Stat.

# VTE Prophylaxis

Date	Adult Venous Thromboembolism (VTE) Prophylaxis Order Form			
Time	(All orders with a ? must be checked to activate. All orders with an <input checked="" type="checkbox"/> are activated.)			
<b>1. Risk factors for the development of VTE:</b>				
Age greater than 40	Immobility / paralysis	Obesity	Serious infection	Hip, leg, pelvic fracture
Heart failure	Inflammatory bowel disease	Pneumonia	Respiratory failure	COPD / Bronchitis
Thrombophilia	Malignancy	Pregnancy	Varicose veins	Nephrotic syndrome
Estrogen use	PVD	Ischemic stroke	CVL / Catheter	Prior hx of DVT / PE
Surgery	Multiple trauma	Smoking		
<b>2. Select risk stratification for acquiring VTE (check indication)</b>				
<b>HIGH RISK</b>	<input type="checkbox"/> Major orthopedic procedures (including lower extremity arthroplasty / fracture) <input type="checkbox"/> Abdominal / pelvic cancer undergoing operative procedure			
<b>MODERATE RISK</b>	<input type="checkbox"/> Stable medical patient with at least one risk factor <input type="checkbox"/> Moderate surgery without risk factors <input type="checkbox"/> Major medical problem (CHF, sepsis, burns) <input type="checkbox"/> Hand surgery with severe trauma repair			
<b>LOW RISK</b>	<input type="checkbox"/> Medical patient – Fully mobile, brief admission (anticipate less than 48 hour admission) <input type="checkbox"/> Surgical patient – Procedure less than 30 minutes, mobile, no additional risk factors			
<b>3. Select VTE prophylaxis (select therapy consistent with risk stratification identified above):</b>				
<b>HIGH RISK</b>	<b>Required – Choose one of the following pharmacologic regimens:</b> <input type="checkbox"/> enoxaparin (LOVENOX) 40 mg subcutaneously q24hr <input type="checkbox"/> enoxaparin (LOVENOX) 30 mg subcutaneously q24hr (CrCl less than 30 mL/min) <input type="checkbox"/> fondaparinux (ARIXTRA) 2.5 mg subcutaneously q24hr (Contraindicated if CrCl less than 30 mL/min) <input type="checkbox"/> warfarin (COUMADIN) _____ mg PO daily (maintain INR 2-3) <b>OR</b> <input type="checkbox"/> warfarin (COUMADIN) _____ mg on _____ and _____ mg on _____			
	<b>Required – Adjunct to pharmacologic regimen:</b> <input checked="" type="checkbox"/> sequential compression devices (SCD) at all times while in bed			
<b>MODERATE RISK</b>	<b>Required – Choose one of the following pharmacologic regimens:</b> <input type="checkbox"/> heparin 5,000 units subcutaneously q8hr <input type="checkbox"/> heparin 5,000 units subcutaneously q12hr (e.g. Age greater than 75y or weight less than 50kg) <input type="checkbox"/> enoxaparin (LOVENOX) 40 mg subcutaneously q24hr <input type="checkbox"/> enoxaparin (LOVENOX) 30 mg subcutaneously q 24hr (CrCl less than 30 mL/min) <input type="checkbox"/> fondaparinux (ARIXTRA) 2.5 mg subcutaneously q24hr (Contraindicated if CrCl less than 30 mL/min) <b>Optional – Select as adjunct to pharmacologic regimen if indicated:</b> <input type="checkbox"/> sequential compression devices (SCD) at all times while in bed			
<b>LOW RISK</b>	<input type="checkbox"/> early ambulation			
<b>4. ?</b> CBC now and every other day with morning labs (moderate or high risk patients as checked above)				
Notify practitioner if platelet count is less than 150,000/mm or 50% decrease from baseline.				
<input checked="" type="checkbox"/> INR daily (if warfarin therapy initiated during admission)				
<b>5.</b> If evidence of any bleeding, hold next dose and notify practitioner				
<b>6.</b> ? No pharmacologic VTE prophylaxis indicated at this time. Must document reason:				
<b>Practitioner / MD Signature</b>		<b>Date</b>	<b>Time</b>	
<b>Lake Butler Hospital Hand Surgery Center</b>		Patient Identification		

Pilot Form 3/15/11

6. Evaluate current medication administration policy and procedure to ensure it contains a reliable system for nursing personnel to take the MAR to the bedside during the administration process and require medications to remain in the unit-dose packaging until the point of administration

- **Developed policy and procedure to ensure reliable system for nursing to take MAR to bedside during administration process**
- **Require medications to remain in unit-dose packaging until point of administration**
- **Have on order:**
  1. **Another Tower**
  2. **IV Supply Cabinet**
  3. **Refrigerated Unit**
  4. **New Medication Cart**



7. Develop, implement, and monitor a reliable system to obtain and document patient allergy symptoms at admission

- Developed new Admission forms to monitor patient allergy symptoms upon admission

LAKE BUTLER HOSPITAL HAND SURGERY CENTER  
ROUTINE ADMISSION ORDERS

DATE	TIME		HEIGHT	WEIGHT

1. Admit to: Practitioner/MD \_\_\_\_\_ Physician Co-Signer \_\_\_\_\_  
 Inpatient                       Observation                       Swing Bed
2. Admission Diagnosis: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
3. Room:     Standard     Contact Precautions     Respiratory Isolation     Reverse isolation
4. Allergies: (Reaction must be documented) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
5. Condition:     Good             Fair             Stable             Poor             Guarded
6. Monitoring:  Vital Signs Routine OR Vital Signs q \_\_\_\_\_ hours  
 Neuro checks every \_\_\_\_\_ hours                       Telemetry  
 Complete fall prevention assessment     Other \_\_\_\_\_  
 Complete skin assessment on admission
7. Activity:     Ad lib             Bed rest with bathroom privileges     Strict bed rest  
 Turn every \_\_\_\_\_ hrs.             OOB to chair as tolerated             Ambulate with assist
8. Rehab:     Physical Therapy     Occupational Therapy     Recreation Therapy     Speech Therapy
9. Nursing:     Call Clinician/MD for: Temp. Greater than 102°F or less than 96°F, SBP less than 90 or greater than 160, DBP greater than 100, HR greater than 110 or less than 50, Respiratory Rate greater than 30 or less than 10  
 Call Clinician/MD for: Telemetry changes if on telemetry, neuro changes if applicable  
 PRECAUTIONS:     Fall     Bleeding     Seizures     Aspiration  
 S/P Mastectomy avoid BP     Right arm     Left arm  
 Pulse oximetry on admission     Pulse oximetry every \_\_\_\_\_ hrs     Continuous pulse oximetry
10. Intake/Output:     Every shift     Strict, with daily weights     Other \_\_\_\_\_
11. Oxygen:     \_\_\_\_\_ L/NC     Ventimask \_\_\_\_\_ %     NRBM \_\_\_\_\_ %     CPAP/BIPAP \_\_\_\_\_  
 Incentive spirometry instruction                       Incentive spirometry every \_\_\_\_\_ hours  
 O<sub>2</sub> \_\_\_\_\_ L/NC PRN to keep sats > \_\_\_\_\_ %

PRACTITIONER/MD: \_\_\_\_\_  
Signature

Patient's Name	Patient Identification #:
----------------	---------------------------

Original

Print Date 11/01/2010

8. Continue to develop and implement high-risk medication policy. Essential elements include consistency of labeling practices in all medication storage areas, inclusion of warning information at order entry into MDG and administration procedures (including IV pump programming).

- Consistent labeling in all medication storage areas
- Includes information at order entry into MDG for example: tall man lettering and High Risk Meds labeled.
- Nursing personnel double check during order entry



9. Reduce the number of medications in the Formulary by implementing an effective therapeutic interchange program for the following medication classes: H2-receptor antagonists, proton pump inhibitors, and ACE inhibitors.

- **Reduced number of medications in the Formulary thereby eliminating therapeutic “clutter” and providing cost containment**
- **1. H2 receptor antagonists – use ranitidine po and inj**
- **2. Proton pump inhibitors – use omeprazole po and esomeprazole inj**
- **3. ACE inhibitors – use lisinopril, and ramipril**

10. Formally evaluate the ability of the organization to provide 24/7 pharmacist review of all medication orders prior to medication administration. This evaluation should include a review of current resources as well as services provided by commercial vendors.

- MDG system does allow for remote access
- Currently looking at different ideas:
  1. Fax or scan order to the Pharmacist
  2. Use a commercial vendor
  3. Possibly acquiring a telemedicine cart that will allow the pharmacist to look at the actual medication and the order at the same time