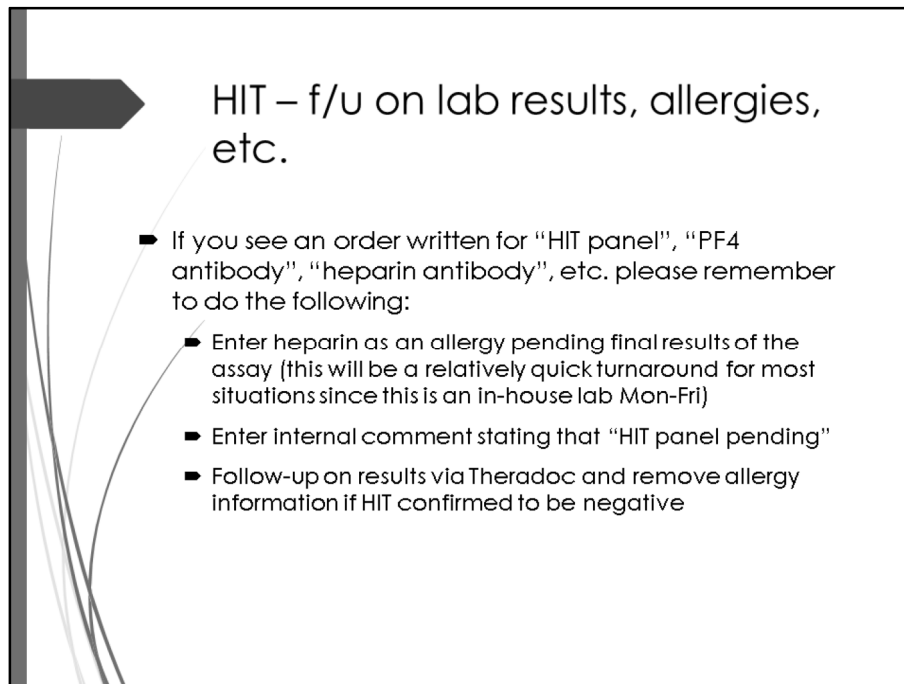




Pharmacist Meeting

March 2017



HIT – f/u on lab results, allergies, etc.

- If you see an order written for “HIT panel”, “PF4 antibody”, “heparin antibody”, etc. please remember to do the following:
 - Enter heparin as an allergy pending final results of the assay (this will be a relatively quick turnaround for most situations since this is an in-house lab Mon-Fri)
 - Enter internal comment stating that “HIT panel pending”
 - Follow-up on results via Theradoc and remove allergy information if HIT confirmed to be negative

In addition to the above 3rd shift reviews a daily report to identify ANY patients (including discharged patients) that have resulted antibody assays. For inpatients: they will update the allergy information and relay this information to the appropriate unit based Rph. For discharged patients they will modify any allergy information as appropriate...BIG thank you to 3rd shift for helping us out with this!

Patient Identification

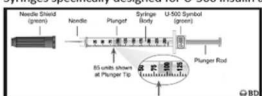
- **Use of TWO patient identifiers (name & DOB)**
 - Patient safety risk
 - Major focus of administration
- **Risk points**
 - Order entry
 - Writing orders
 - Minimize tubing of orders when possible
- **Pyxis Connect**
 - Nice tool but CANNOT be our ONLY solution
 - Don't assume that this will catch all order entry errors

Please continue to be VERY diligent to ALWAYS use 2 patient identifiers prior to filing orders and writing any orders in the chart. This is critical to ensuring patient safety.


Safety Alert!!
Humulin U-500 Insulin

Two new products are now on the market which may temporarily cause increased confusion for verifying home medication U-500 dosing.

- **BD U-500 Insulin Syringes**
 - Syringes specifically designed for U-500 insulin are now on the market



- **Humulin R U-500 KWIKPEN**
 - New pre-filled syringe device that is now on the market. No dose conversion is necessary when determining a patient's U-500 dose
 - Example: U-500 KWIKPEN – 50 units ACI (50 units of 500 unit/ml insulin) [50 units of U-500 insulin (250 total units of insulin)] – no dose conversion needed
 - Pharmacist: confirm that patient uses pen as home med and if so profile accordingly
Example: 50 units via **KWIKPEN** = dispense 0.1 ml (50 units) via tuberculin syringe



SAFETY CONCERN:

Until these products become more commonly used some patients may still be using: U-100 insulin syringes OR Tuberculin syringes to measure their doses

PHARMACY PROCESS – Continue to follow our usual process outlined below and once the U-500 syringes are more commonly used we may consider switching to this product for dispensing in the future

POLICY:

Please continue to verify every patient's dose to ensure the ordered dose accurately reflects their home regimen

- TB syringe?
- U-500 syringe?
- U-500 syringe?
- KWIKPEN?

1. The pharmacist should verify with the patient or prescriber the dose and volume of U-500 insulin that is to be administered to the patient prior to order entry onto the pharmacy medication profile. An alert will be added to computer entry system to warn pharmacist.
2. The total dose should be ordered in BOTH units and volume such as:
100 units of U-500 Concentrated Insulin = 0.2 ml of insulin using a tuberculin syringe
200 units of U-500 Concentrated Insulin = 0.4 ml of insulin using a tuberculin syringe
3. Pharmacy will draw up individual patient doses in a tuberculin syringe and hand deliver to the nurse.
4. **PHARMACY WILL NEVER LOAD U-500 Concentrated Insulin in the Pyxis.**
5. Pharmacist should attempt to schedule administration at the same time the patient has been receiving at home, taking into account the timing of meals while in the hospital. Change in dosage times can cause

Reminder about U-500 insulin. Don't take any orders for U-500 at face value ("50 units of U-500 insulin"). We must continue to verify how the patient draws up their insulin (U-100 syringe, U-500 syringe, Qwik pen). Most of the patients that we are admitting seem to primarily be using U-100 syringes but we should expect an eventual increase in U-500 syringe use.

Everyone is doing a GREAT job of clarifying orders as expressed in ml and dispensing in TB syringes. Thank you!

Therapeutic Duplications - Review

- ▶ Multiple PRN meds for the same indication not allowed
 - ▶ Home med considerations (potency hierarchy, OTC meds, prescription non-opioids, etc.)
 - ▶ Handwritten orders
 - ▶ Order sets
 - ▶ IV and oral meds ordered for the same PRN indication
 - ▶ New med orders for same indication supersede previous orders

Home meds:

- No preference specified for prescription opioids:
 - Use potency hierarchy to determine which meds to be active on MAR and most potent agent will be used
 - This is on formweb
 - Post-op orders trump home med orders
- OTC pain meds (NSAIDs, etc.)
 - PRN mild pain indication
- Prescription PRN pain home meds (Mobic, Celebrex, etc.)
 - PRN moderate pain indication
- Handwritten orders
 - If only one medication is written then “PRN PAIN” is acceptable
 - If other pain meds are active on the MAR then a type of pain (mild, moderate, severe) must be indicated and clarified
- Order sets
 - 1st agent written in the list of orders will be considered to be the provider’s choice
- IV and oral meds for the same indication
 - We must designate the IV option as “for ___ pain uncontrolled by or unable to take oral meds”

Alcohol Withdrawal Protocol

- ▶ **Nursing confusion!**
- ▶ **Advancing/changing regimens**
 - ▶ Nurses are not correctly interpreting when regimens should be advanced, decreased, or tapers started
- ▶ **Verify CIWA in visual flow sheet to confirm the correct regimen is being requested (visual flow sheet – “VS/Hemodynamics”)**
- ▶ **Only profile the needed regimen and d/c all other regimens that are no longer needed**

15-20	Regimen B Progressive Alcohol Withdrawal	Begin Ativan 2mg PO/IV every 1 hour x 2 doses. ■ Reassess CIWA score 2 hours after FIRST dose of 2mg Ativan ■ If CIWA remains between 15 and 20 continue with Ativan 2mg PO/IV every 2 hrs ■ If CIWA score <15 but >8 x 24 hours, go to regimen A ■ If CIWA score <8 x 24 hours, begin HIGH TAPER ■ If CIWA score >20, begin Regimen C	If IV lorazepam (Ativan) is initiated, begin cardiac monitoring with continuous pulse oximetry
-------	--	---	--

This order set is currently being audited by clinical informatics. There is obviously much confusion from nursing on how to execute these orders and the actual order set will likely be reassessed for needed changes in the coming weeks.

For now please do not advance/decrease regimens or begin tapers requested via phone calls unless you verify that the CIWA scoring warrants an adjustment.

It was discovered that some requests to do so were not actually needed b/c nurses did not interpret the orders correctly. The CIWA scoring can be found in the visual flowsheet as indicated on the above slide.

Vancomycin Consults

- ▶ **Our utilization of Vancomycin exceeds that of national comparison data**
- ▶ **When you are reviewing your PK consults each day:**
 - ▶ Don't only concentrate on the math/calculations
 - ▶ Evaluate cultures and continued need of vancomycin
 - ▶ Unsure if vancomycin is still appropriate? Ask Linda or myself and we will be glad to help you evaluate the patient case.
- ▶ **Antibiotic utilization data (by medication and facility)**
 - ▶ This is being reviewed with the physicians on both campuses to raise awareness
 - ▶ Hixson utilization much higher than national average

Stewardship committee asked that we in pharmacy be as proactive as possible in critically evaluating necessity of continued vancomycin use and suggest discontinuation when/where appropriate. Since we dose virtually all vancomycin in the hospital we have many opportunities to evaluate appropriateness if cultures negative or other data indicates continued empiric use not necessary.

Discharge Med-rec Pharmacy process changes

Pharmacist - LPN discharge med-rec collaboration (1-23-17 thru 2-27-17)

Count of Clinical Activity	Total
1-MH/MNP Discharge counseling/education	163
ADE Prevention - Major	7
ADE Prevention - Minor	22
Discharge Medication Reconciliation	161
Medication Reconciliation - ADE Major Prevented	1
Medication Reconciliation - ADE Minor Prevented	30
Program Enrollment and Discharge Prescription Coordination	9
(blank)	
Grand Total	393

Modification to our process (collaborating with LPNs) has resulted in a significant increase in our patient encounters (discharge med-rec review & discharge counseling). This work is still confined to the NT only and even without using the LACE tool to target patients we are still intervening on ~30% of patients and making adjustments and/or correcting errors and omissions prior to patients being discharged home.

This work is not focused on high LACE score patients but rather on ANY patient that the LPN is involved in preparing discharge paperwork. This allows us to focus our efforts on reviewing the clinical data, ensuring d/c med orders are accurate, and discussing d/c med plan with patient. This prevents us from spending as much time on non-clinical, clerical activities (updating RXM, copying/printing forms, etc.).

We are evaluating next steps and potentially consider focusing these efforts on patients with specific diagnoses (COPD, etc.).

Glycemic control optimization – “Shane’s project”

Inpatient Management Strategy	Average BG Checks > 140 (%)	Average BG Checks > 180 (%)	Average BG Checks > 250 (%)	Average BG Checks < 40 (%)	Average BG Checks < 70 (%)
BBI	72.9%	51.4%	24.5%	0.7%	4.8%
BPI	69.4%	43.1%	17.6%	0.2%	5.5%
None	66.7%	-	-	-	-
PO	31.6%	15.8%	-	-	-
PO + Insulin	63.3%	32.8%	21.2%	0.3%	3.7%
SSI	49.6%	28.4%	13.9%	0.0%	2.3%
SSI + 70/30	91.6%	66.4%	12.9%	0.0%	0.0%
Total	61.9%	38.4%	19.3%	0.3%	4.0%

Reviewed 3 months of ALL patients with any ICD-10 diagnosis for DM.

Findings: The biggest opportunity for improving glycemic control are patients that are already on basal insulins. As you can see in the above slide patients on BBI (basal+nutritional+correctional) and BPI (basal+correctional) have the worst glycemic control. Most of these patients were already on some sort of basal insulin at home. We have found that most home regimens are simply restarted and not titrated up or down based on inpatient glucose values.

Next steps: After discussing with physicians, we are going to pilot a process on 6-north in which we are going to use Theradoc to identify patients who can benefit from glycemic optimization and work with physicians directly to improve control. The physicians indicated that glycemic control is not usually among their top priorities and they felt that closer oversight could help improve patient care.

P&T Updates

► DPP-4 Inhibitors (Januvia, Tradjenta, Onglyza, Nesina)

► Go live: 03/10/17

THERAPEUTIC INTERCHANGE OR GUIDELINES

If you order

Linagliptin 5 mg once daily
Saxagliptin 2.5 mg once daily
Saxagliptin 5 mg once daily
Sitagliptin 100 mg once daily
Sitagliptin 50 mg once daily
Sitagliptin 25 mg once daily
 Combination DPP-4 + Metformin agents

Pharmacy will interchange to

Alogliptin 25 mg once daily or adjusted for renal function
Alogliptin 25 mg once daily or adjusted for renal function
Alogliptin 25 mg once daily or adjusted for renal function
Alogliptin 25 mg once daily or adjusted for renal function
Alogliptin 12.5 mg once daily or adjusted for renal function
Alogliptin 6.25 mg once daily or adjusted for renal function
Alogliptin with dosing per above, plus metformin

Agent	Usual Dose	Dosage Adjustment in Renal Insufficiency		
		CrCl ≥ 60 mL/min	CrCl ≥ 30 to < 60 mL/min	CrCl < 30 mL/min or ESRD requiring dialysis
Alogliptin ¹	25 mg once daily	No dosage adjustment	12.5 mg once daily	6.25 mg once daily without regard to time of dialysis

New interchange – now LIVE.

P&T Updates – formulary additions, therapeutic interchanges

■ Tecentriq® (atezolizumab)

- Similar MOA to Opdivo & Keytruda (immune modulating chemo)
- Indicated for: metastatic NSCLC & advancec/metastatic urothelial carcinoma
- Restrictions: Outpatient use only for FDA approved indication(s) or payer-approved off-label indications

■ Glaucoma Agents Therapeutic Interchange

- Alpha agonists – brimonidine 0.2%
- beta blockers – Timolol maleate 0.25%, 0.5%
- carbonic anhydrase inhibitors – Dorzolamide
- **Full interchange on Form Web**

Tecentriq

- Monoclonal antibody that inhibits PDL-1 (program death ligand) and prevents it from binding to various receptors which in turn allows immune system to decrease tumor growth

Glaucoma agents – only the above drugs are now listed in our drug dictionary – see form web for full conversion details if a non-formulary med is ordered.

P&T Updates – formulary additions, therapeutic interchanges

■ Cetylev® (N-acetylcysteine)

- Effervescent formulation of NAC
- No clinical benefit compared to oral/liquid formulation
- Automatic Interchange to liquid/nebulizer solution

Antidotes	
ORDERED	SUBSTITUTION
Acetylcysteine (CETYLEV®) 140 mg/kg x 1 dose (loading dose) 70 mg/kg every 4 hours x 17 doses	Acetylcysteine oral liquid (nebulizer solution) 140 mg/kg x 1 dose (loading dose) 70 mg/kg every 4 hours x 17 doses

■ Relistor® (methylnaltrexone) oral formulation

- Oral formulation of methylnaltrexone
- NON-FORMULARY with auto-substitution to Movantik

When you order this	You will receive
Methylnaltrexone (Relistor®) 450 mg once daily	Naloxegol (Movantik®) 25 mg once daily
Methylnaltrexone (Relistor®) 150 mg once daily	Naloxegol (Movantik®) 12.5 mg once daily

Movantik vs. Relistor - Theradoc

- EZ Alert created to identify patients on Relistor
- Suggest Movantik as alternative
 - Enter as "New Therapy Recommendation"
 - New canned text available via form web link (accessed via rounds assistant) to populate the text of your CI
- Future: may consider automatic interchange

MRN: 00148923 Location: 1-MH - MIC MIC 13 Attending: JONES, FROILAN B. Account #: 44725401

Alert Time: 11/02/2016 04:53

Alert: EZ Alert: Targeted Drug: methylnaltrexone (Relistor) Admit Diagnosis: PNEUMONIA, SEPSIS

Age: 73 years Sex: F
 SCR: 0.46 (11/02/2016) Height: 65 in (165 cm)
 > 120 mL/min(Cockcroft-CrCl: Gault; weight used=76 kg) Weight: 229.9 lb (104.5 kg)

Review for appropriateness and/or possible conversion to oral alternative (Movantik)

Order/Culture	Result	Source	Collected	Result Status (Date/Time)	Specimen #	Ordering Provider
COMPREHENSIVE METABOLIC PANEL	CREATININE = 0.46 MG/DL L (0.55-1.02)		11/02/2016 04:05	F (11/02/2016 04:53)	20161102:C00071U	PESCE,RICHARD,R...

Drug	Dose	Start	End	Status	Pat Class
Relistor 12 MG VI	12 MG SC DAILY	11/01/2016 09:00	11/03/2016 12:00	ACTIVE	I

Medications Lab Review Microbiology Review

The above EZ alert has been created to identify patient on injectable Relistor

Based on the previous slides Movantik can be a more cost effective option for patients able to take PO meds.

If you are on the floor and you see this ordered please suggest Movantik as an alternative to Relistor. For ongoing orders the EZ alert will help us identify patients on Relistor and suggest Movantik as potential alternative.

We have added canned text to rounds assistant in Theradoc so you can easily generate a note that contains some brief verbiage about this potential conversion (rationale, dosing, etc.).

We will likely pursue an auto-conversion in the future for patients able to take PO but for now I would like for us to begin to move the needle in use toward Movantik when possible so MD's can gain familiarity with it so we will be better positioned in the future to implement an auto-sub process.

Blood Factor Products Reference & Product Standardization

- ▶ **Standardization of formulary blood factor products**
- ▶ **Form Web reference**
 - ▶ Outlines the “preferred” formulary product for each indication
 - ▶ Also provides guidance IF specific brand name product requested by MD
 - ▶ Ordering information
 - ▶ Information for how to quickly obtain additional product in the event that an urgent need arises or if Rodney or other manager not available to order
 - ▶ Comprehensive reference chart listing ALL clotting factors (formulary & non-formulary)



See attached document (click on Microsoft work icon to open document) for new process for ordering and choosing formulary preferred blood factor products.

Specialty Pharmacy Medications

- ▶ **Specialty pharmaceuticals**
 - ▶ high cost medications typically designated for the treatment of patients with rare and/or chronic diseases.
 - ▶ The distribution process for these types of medications is typically restricted to "specialty pharmacies" which manage the handling and service requirements of specialty pharmaceuticals including dispensing, distribution, reimbursement, case management, and other services specific to patients with these rare and/or chronic disease states.
- ▶ **New "Non-formulary, specialty" designation**
 - ▶ Home meds: utilize patient home supply
 - ▶ New orders: navigate specialty pharmacy distribution channels to arrange med to be filled as a direct to patient order when possible
- ▶ **The next 3 slides explain this formulary designation along with "non-formulary" and "formulary, non-stocked" designations.**



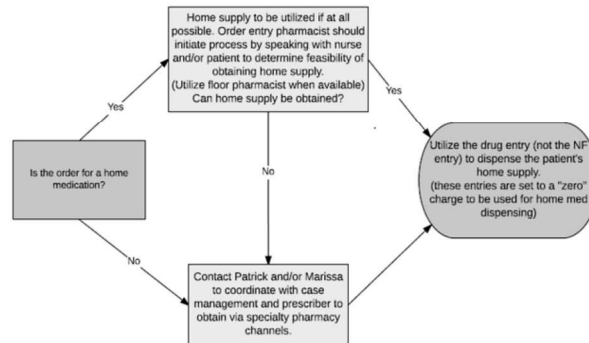
Microsoft Word Document

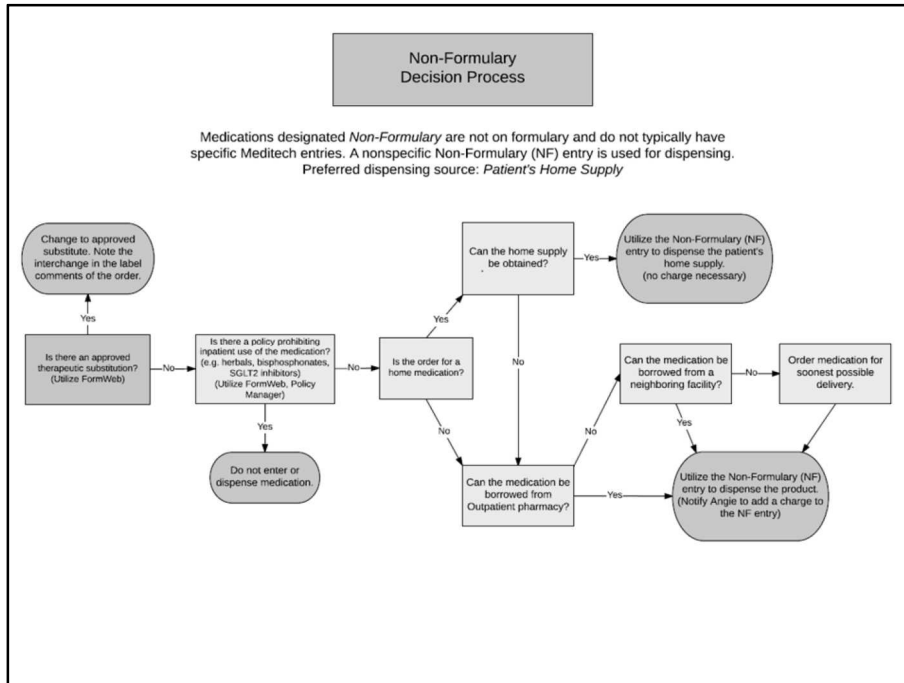
See slide above and attached document – the next three slides explain new formulary designations and processes for handling these different scenarios.

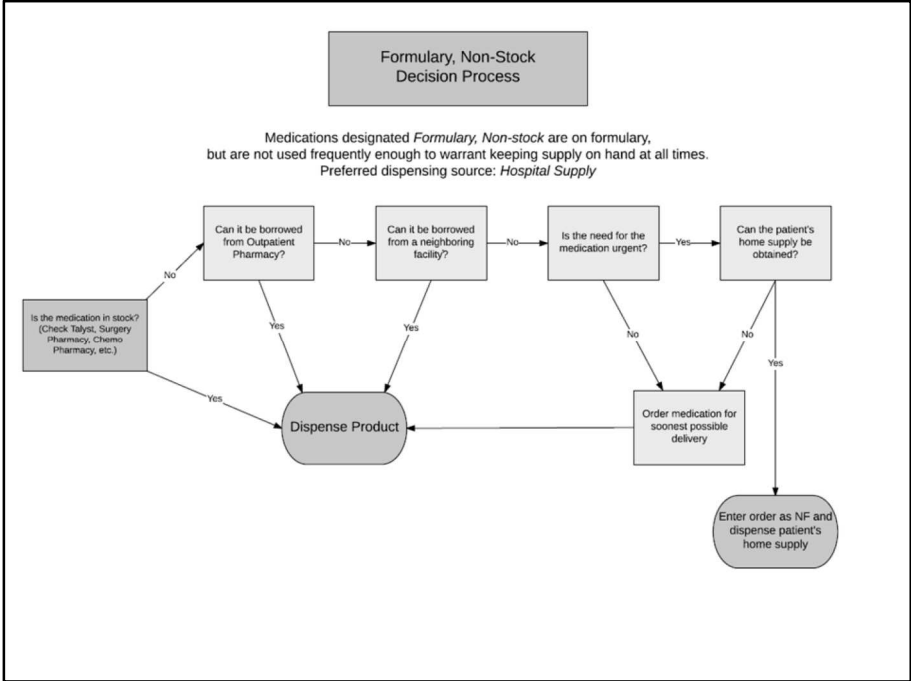
These diagrams and new formulary designations were designed following a comprehensive review of our drug dictionary. We have inactivated MANY drug entries and reclassified many others. It is important that everyone understands these processes – please ask me or Jeff for clarification if you don't understand.

Non-Formulary, Specialty Decision Process

Medications designated *Non-Formulary, Specialty* are not on formulary, but Meditech entries are maintained for drug interaction checking and other safety checks.
Preferred dispensing source: *Patient's Home Supply*







Hypertonic saline (3% saline)

- **Patient safety issues identified**
- **Some recent use identified as placing patients at risk for serious safety events regarding:**
 - Appropriate use, inconsistent monitoring, parameters to hold (Na⁺ increase by ___ over x hrs), etc.
- **Decision made to NOT restrict to specialties only**
- **Appropriate use criteria to be developed in conjunction with nephrology and hospitalist service and discussed/approved at April P&T**
- **Until this is developed:**
 - ONLY dispense 3% saline in specified volumes (no ongoing orders)
 - Ensure repeat labs are ordered (Q2 or Q3 hours)
 - If repeat labs are ordered please watch for these to return and suggest discontinuation if serum Na⁺ increases by more than 8 meq/L in a 24 hour period.

A new policy and mandatory order set is currently being developed in conjunction with nephrology and hospitalist leadership. Until this is developed please be cautious when entering 3% NS orders. In particular pay close attention to the last 3 bullet points above.

More to come after the April P&T on the new policy and order set.

Perioperative Medication Management

Order set# 1340 Pre-Operative Anesthesia for Adult Patients

- **Significant changes coming for this order set**
- **Medications to hold pre-op and post-op**
 - This section will be completely revamped
 - The orders will ONLY list medications that should either NOT be given or given in a reduced dose (some insulins)
- **How will this impact pharmacy?**
 - Outpatients – nothing will change; pre-testing nurses will instruct patients how to manage their medications peri-operatively
 - Inpatients – We will need to make eMAR modifications to the patient's active medications IF they are receiving meds that need to be held or dose reduced prior to surgery. Example: hold any short acting insulins the day of surgery
- **How will this be done?**
 - We are working on workflow options to make this as painless as possible
 - Quick reference cards will be created to more easily identify meds that may need to be held

The above changes will be implemented mid to late April.

More education will be provided prior to roll out.

IV Calcitonin

Appropriate use criteria (modified)

Treatment of hypercalcemia:

Severity	Clinical presentation	Treatment Options Preferred	Alternative Treatment Options	Comments
Mild [Ca ²⁺]: 10 – 12 mg/dL	<ul style="list-style-type: none"> Cognitive impairments, abdominal pain, fatigue or muscle weakness 	<ul style="list-style-type: none"> Observation Hydration (oral) Increase mobility Discontinue offending agents 	N/A	<ul style="list-style-type: none"> Asymptomatic or mildly symptomatic hypercalcemia do not require immediate treatment
Moderate [Ca ²⁺]: 12 – 14 mg/dL	<ul style="list-style-type: none"> Cognitive impairments, abdominal pain, fatigue or muscle weakness 	<ul style="list-style-type: none"> Follow the same precautions as described in Mild hypercalcemia Acute Ca²⁺ rise with symptomatic changes requires aggressive treatment 	<ul style="list-style-type: none"> 0.9% NS 4 - 6 L in 24 hours After rehydration, <ul style="list-style-type: none"> Pamidronate 30 - 90 mg at 20 mg/h or Zoledronic acid (ZA) 4 mg over 15 min Furosemide IV 10 - 20 mg if necessary Calcitonin: <ul style="list-style-type: none"> Failed rehydration Failed pamidronate (after 24 hours) ATP (Scr > 3 or CrCl < 30 ml/min) 	<ul style="list-style-type: none"> Usually well-tolerated chronically and may not require immediate treatment Prior to saline and diuresis treatment, determine and monitor fluid status in patients with heart or renal impairments. Bisphosphonate maximum effect occurs in 2-4 days
Severe [Ca ²⁺]: > 14 mg/dL	<ul style="list-style-type: none"> May see life-threatening symptoms; ECG changes, pancreatitis 	<ul style="list-style-type: none"> 0.9% NS 4 - 6 L in 24 hours After rehydration, <ul style="list-style-type: none"> Pamidronate 30 - 90 mg at 20 mg/h or Zoledronic acid (ZA) 4 mg over 15 min Calcitonin 4 units/kg Q 12 hours for 24-48 hours Furosemide IV 10 - 20 mg if necessary 	<ul style="list-style-type: none"> Denosumab 50-60 mg (in severe, symptomatic hypercalcemia of malignancy refractory to ZA) 	<ul style="list-style-type: none"> Require treatment regardless of symptoms Calcitonin is most beneficial in patients with symptoms and calcium >14 mg/dL Calcitonin-tachyphylaxis limits usefulness to ~ 48 hrs

Calcitonin criteria for use – see highlighted sections above

- Ongoing orders should be monitored closely and any orders approaching 48 hours of therapy should be discussed directly with the provider regarding the need for continued therapy.

CHI national has implemented CHI-wide use criteria for the use of IV calcitonin. This is largely consistent with our pre-existing reference information that we implemented in 2015.

Key points to remember and to evaluate with all new IV calcitonin orders:

- Should only be used in severe hypercalcemia or if patient has failed or not candidate for bisphosphonate therapy (see highlighted sections above)
- Use should be limited to 48 hour duration only and discontinued earlier if possible.


Cost is ~ \$2K per EACH 200 unit vial

Every order should be evaluated for appropriateness prior to entering in Meditech.



Pharmacist Letter

- ▶ Please use this resource...it's FREE!
- ▶ Login information can be found using the below link



Click on the above attachment for instructions on how to access Pharmacist Letter.

