Pharmacist Meeting
August 2017

Home Medication Lists –
Process updates/reminders (*see handout)*

P&T Updates – New Formulary Meds

- **Ocrevus (ocrelizumab)**
  - Indication:
    - treatment of adults with relapsing or primary progressive forms of multiple sclerosis
  - Mechanism of action:
    - MAB directed against B cells expressing CD20 surface antigen. Differs from other MS therapies (interferon, Tysabri) that primarily target T cells.
  - Clinical Data:
    - Relapsing/remitting MS – superior efficacy rates (proportion free relapse, disability progression, MRI lesions) as compared to Interferon Beta
    - Primary Progressive – modest but statistically significant reduction in disability progression & MRI lesions
  - Clinical Pearls:
    - Only drug approved for primary progressive form of MS
    - High incidence of infusion related reactions (34-40% of patients) & most common with 1st infusion
    - Pre-meds required prior to ALL infusions → Benadryl (IV), Solu-Medrol 100 mg IV @ 30 mins prior to infusion
    - Expected to have lower incidence of PML as compared to Tysabri
  - Restrictions:
    - Outpatient infusion use ONLY

P&T Updates – New Formulary Meds

- **Gazyva (obinutuzumab)**
  - Indication:
    - CLL in treatment naïve adults in combination with chlorambucil
    - Combo therapy with benadmustine for treatment of follicular lymphoma with relapse/refractory to a rituximab containing regimen
  - Mechanism of action:
    - Anti-CD20 MAB with improved efficacy over previous type I MABs (Rituxan, etc.)
  - Clinical Data:
    - CLL – Improved median progression free survival, overall survival, complete response, and median duration of response in comparison to rituximab containing regimen.
    - Lymphoma – Improved median progression free survival (Gazyva + bendamustine vs bendamustine monotherapy)
  - Clinical Pearls:
    - High incidence of infusion related reactions (40-65% of patients) & most common with 1st infusion
    - Pre-meds required prior to ALL infusions → APAP & Benadryl (IV) – 30 mins prior PLUS Glucocorticoid (Decadron 20 mg or Solu-Medrol 80 mg) – at least 1 hour prior to infusion
  - Restrictions:
    - Outpatient infusion use ONLY

Glycoprotein 2b/3a inhibitors – Formulary Change Integrilin → Aggrastat

- **Aggrastat (tirofiban) will be replacing Integrilin (eptifibatide) as our GP 2b/3a inhibitor**
  - Go Live: 8/29 (Tuesday)
- **Aggrastat dosing**
  - Single bolus dose (25 mcg/kg) – compared to double bolus for Integrilin
  - Infusion dose @ 0.15 mcg/kg/min (CrCl > 60 ml/min) or 0.075 mcg/kg/min (CrCl ≤ 60 ml/min)
  - Room temp storage – will be loaded in Cath lab Pyxis machines
- **Similar clinical data and guideline recommendations (next slide)**
- **Reminder: Reopro is also now Non-Formulary**

Guideline Excerpts

- **2011 ACCF/AHA PCI Guidelines**

"Abciximab, double-bolus eptifibatide (180 mcg/kg bolus followed 10 minutes later by a second 180 mcg/kg bolus), and high-bolus dose tirofiban (25 mcg/kg) all result in a high degree of platelet inhibition, have been demonstrated to reduce ischemic complications in patients undergoing PCI, and appear to lead to comparable angiographic and clinical outcomes."

- **2013 ACCF/AHA STEMI Guidelines**

"It is reasonable to start treatment with an intravenous glycoprotein (GP) IIb/IIIa receptor antagonist such as abciximab, high-bolus-dose tirofiban or double-bolus eptifibatide at the time of primary PCI (with or without stenting or clopidogrel pretreatment) in selected patients with STEMI who are receiving unfractionated heparin (UFH). ***(Level of Evidence: A, B)***

- **2014 ACC/AHA NSTE-ACS Guidelines**

Class I
In patients with NSTE-ACS and high-risk features (e.g., elevated troponin) and not adequately pre-treated with clopidogrel or ticagrelor, it is useful to administer a GP IIb/IIIa inhibitor (abciximab, double-bolus eptifibatide, or high-dose bolus tirofiban) at the time of PCI. ***(Level of Evidence: A)***

Class IIa
In patients with NSTE-ACS and high-risk features (e.g., elevated troponin) treated with UFH and adequately pretreated with clopidogrel, it is reasonable to administer a GP IIb/IIIa inhibitor (abciximab, double-bolus eptifibatide, or high-dose bolus tirofiban) at the time of PCI. ***(Level of Evidence: B)***

Class IIb
In patients with NSTE-ACS treated with an early invasive strategy and dual antiplatelet therapy (DAPT) with intermediate/high-risk features (e.g., positive troponin), a GP IIb/IIIa inhibitor may be considered as part of initial antiplatelet therapy. Preferred options are eptifibatide or tirofiban. ***(Level of Evidence: B)***

Meds *NOT* added to formulary

- **Zinplava (bezlotoxumab)**
  - Indication:
    - to reduce the recurrence of CDI in adults receiving traditional treatment for CDI and at high risk for CDI recurrence
  - Mechanism of action:
    - MAB that binds to *C. difficile* toxin B
  - Clinical pearls:
    - Data not compelling when considering cost ($3800 per dose). Small difference in CDI recurrence observed although the two identical studies revealed some conflicting results in "Global Cure"
    - No data to compare this therapy to oral vancomycin tapering regimens, or fecal microbiota transplant
  - ID physicians and antibiotic stewardship committee supported Non-Formulary designation

HIV Antiretroviral Formulary Review

- **Rationale:**
  - Existing formulary was evaluated for opportunities to condense formulary and add new therapies to formulary
- **Formulary Changes (next slide)**
  - Several combination products removed from formulary
  - Many older agents will be removed from formulary due to low utilization
  - One new agent added to formulary → Genvoya
- **Antibiotic Stewardship Committee has approved these formulary changes**

Medications	Strength	Formulation
Truvada (tenofovir/emtricitabine)*	300/200mg	Tab
Atripla (tenofovir/emtricitabine/efavirenz)*	300/200/600mg	Tab
Stribild (cobicistat/elvitegravir/ emtricitabine/tenofovir disoproxil fumarate)*	150/150/200/300mg	Tab
Combivir (lamivudine/zidovudine)*	150/300mg	Tab
Epzicom (abacavir/lamivudine)*	600/300 mg	Tab
Triumeq (abacavir/lamivudine/dolutegravir)*	600/50/300 mg	Tab
Viramune (nevirapine)	200mg	Tab
Reyataz (atazanavir)	200mg	Cap
Epzicom (abacavir/lamivudine)	600/300mg	Tab
Crixivan (indinavir)	200mg	Cap
Lexiva (fosamprenavir)	700mg	Tab
Retrovir (zidovudine)	100mg	Cap
Videx EC (didanosine)	400mg	Cap
Viracept (nelfinavir)	250mg	Tab
Zerit (stavudine)	20mg	Cap
Zerit (stavudine)	40mg	Cap

- ✓ Items highlighted in blue = drugs that we will use separate drug ingredients (pharmacy sets are created in Meditech)
- ✓ All other meds are "Non-formulary"
- ✓ Most commonly used medications will be retained on formulary

HIV review - continued

- **New "Non-formulary, specialty" entries**
  - Stribild, Prezcobix, Descovy
  - Linda will review these daily and if the patient is unable to provide their home supply she will execute a formulary conversion using separate drug components

Medication Safety – Insulin Pumps

- **Insulin Pump Orders** (see handout)
  - Orders and policy modified to help ensure clear parameters for nursing in regard to monitoring, management of hypo & hyperglycemia, pump troubleshooting, etc.
  - Recent event (insulin pump on home med sheet checked to continue with subsequent hypoglycemia) highlighted the need for this order to be mandatory for all insulin pump continuation orders
- **New Process**
  - INSULIN PUMP ORDERS: Subcutaneous (PSO #1836) are required by P&T recommendation for ALL patients continuing on an insulin pump
  - If the insulin pump orders are not scanned please print the orders and get these signed ASAP
  - There are no sections of the orders that have to be completed by the MD but this ensures that the hypoglycemia protocol and monitoring information is available for the nurse at all times
    - If diabetes team is not here to complete the rate information (page #2), the orders state that the pump may be continued at current settings until it can be interrogated by diabetes educator

Medication Safety – Fleets Enema (sodium phosphate enema)

- **Acute phosphate nephropathy**
  - Nephrology expressed concern regarding renal adverse events associate with SPE
  - Some patients receiving multiple doses despite creatinine > 2, reports of renal impairment secondary to SPE
- **Warnings/Precautions**
  - Strong correlation and FDA warnings associated with oral sodium phosphate
  - Risk of enema limited to case reports – primarily in patients with multiple doses or with pre-existing renal dysfunction
- **P&T recommendation**
  - Single dose therapy acceptable for all patients except dialysis patients
  - "Daily PRN" orders will be automatically discontinued for any patient with serum creatinine $\geq 1.5 \rightarrow$ new Theradoc alert to be developed

TPN Policy Changes – Glycemic Management

GLYCEMIC MANAGEMENT:
Pharmacists may order or make insulin therapy adjustments for the following conditions when clinically appropriate as indicated below. However, if hospitalist or other provider(s) are currently managing insulin or other therapies for glycemic control any modifications in therapy will be discussed with the provider prior to execution of any of the below therapies.

1) Sliding scale insulin dose level titration to the next highest level: If blood glucose (BG) > 180 mg/dl two (2) times in 24 hours AND all BG readings > 90 mg/dl

1) Long-acting insulin
   a. ***Patients on home long-acting insulin therapy:*** Pharmacists can resume patient home regimens (or formulary equivalent) upon initiation of TPN therapy if not already continued by other provider. Further dose titrations may be executed daily if patient experiences persistent hyperglycemia (BG > 200 mg/dl x 2 within 24 hour period) in 5-10 unit increments. Total insulin utilization over the previous 24 hours will be reviewed to more accurately determine the needed dose increase. Dose reductions may also be performed in the event of hypoglycemic events or reductions in TPN rate or caloric intake.

   a. ***Patients not on home long-acting insulin therapy:*** Pharmacists may begin long-acting insulin therapy for any TPN patient experiencing persistent hyperglycemia (BG > 200 mg/dl x 2 within 24 hour period). The initial dose may be up to 0.1 units/kg and further titrated daily if patient experiences persistent hyperglycemia (BG > 200 mg/dl x 2 within 24 hour period) in 5-10 unit increments up to a total dose of 0.4 units/kg. Titrations beyond this dose will be discussed with the attending physician or other appropriate provider before execution if unable to maintain adequate glycemic control despite the addition of long-acting insulin up to the aforementioned maximum dose. Total insulin utilization over the previous 24 hours will be reviewed to more accurately determine any needed dose increase. Dose reductions may also be performed in the event of hypoglycemic events or reductions in TPN rate or caloric intake.

   a. ***Patients on cyclic TPN therapy:*** The substitution of NPH insulin can be considered for patients on cyclic TPN therapy as the duration of effect for this insulin is more appropriate for patients on cyclic TPN.

Titrating Medications Policy

Notice:
Titration Orders for Medications
Source:
The Joint Commission
Relevant to:
Hospital
Date:
April 4, 2017

The Joint Commission (TJC) recently addressed a question about titration orders in a standards FAQ. According to TJC, when titration orders are allowed by the organization, there are specific elements that must be included in the titration order:

- Medication name
- Medication route
- Initial or starting rate of infusion (dose/min)
- Incremental units the rate can be increased or decreased
- Frequency for incremental doses (how often dose/rate) can be increased or decreased
- Maximum rate (dose) of infusion
- Objective clinical endpoint (RASS score, CAM score, etc.)

This ***MUST*** be specified by the provider

The Joint Commission suggests that the following goals for the safe administration of medication be considered when titrating medications:

Titrating Medications Policy – *continued*

- **Key things to know**
  - The circled information on the previous slide MUST be included on the **order**
  - All elements must be included on the order or electronic order for us to be compliant with this standard
  - We ***cannot*** expect or depend on physicians to include all of these elements along with their order (virtually impossible in paper charting world)
- **How will we comply with this newly modified standard?**
  - Titrating Medications policy currently being modified to include all required elements
  - All necessary order components have been added to the label comments of our pharmacy sets (see next slide) so that this information is part of the order in the absence of this information being specifically provided by the MD/provider.
  - *Note:* some orders (sepsis, etc.) have parameters that differ from the policy. The order set specific parameters have been modified on these specific pharmacy sets so that the correct label comment information is present.

POLICY:
Medications will be titrated in a safe and accurate manner as established by Pharmacy recommendations from appropriate drug information sources, physician order and clinical assessment. In the absence of specific MD/Practitioner orders for titrating and tapering certain IV medications, the attached guidelines will be followed and titration instructions will be defined on the eMar. Unless otherwise specified by the physician, all the required titration order elements below will be included within the medical record (eMar) as defined by this policy.

- Exception to above: clinical endpoint (SBP, RASS, etc.) must be specified by provider
- If physician orders differed from the standard included on eMar (different max dose, etc.) **then the label comments must be modified**

Rho(D) Immune Globulin – Process Change

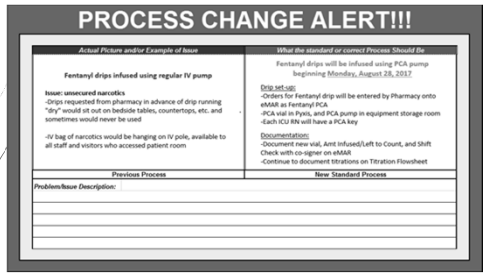
Please direct ANY requests for this medication to the blood bank at the appropriate campus.

The process will be as follows:

- Hixson blood bank: (4) 300 mcg doses will be stocked by Hixson blood bank
- GW Blood bank: (2) 300 mcg doses will be stocked by GW blood bank
- No product will be stocked in either Talyst machine.
- Marty and Patrick will be notified by blood bank anytime this is used and we will coordinate charging for the dose(s) and restocking the appropriate blood bank location.
- Any requests from providers requesting HyperRHO must be directed to blood bank (blood bank has educated both ED's and distributed process change alerts to the appropriate staff)

```
Rho(D) Immune Globulin          Rho(D) Immune Globulin 300 MCG SYR
          **** STOP - not dispensed by pharmacy ****
   No longer dispensed by Pharmacy. Doses are stocked and
   dispensed by Blood Bank at both campuses.  If requested,
   direct caller to Blood Bank.
   Glenwood Campus: ext. 8679     Hixson Campus: ext. 7145
```

Fentanyl Drip Process Change



Valve Anticoagulation Orders

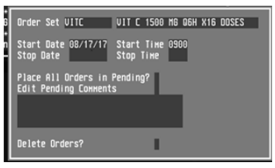
- **Feedback**
  - Concerns?
  - Struggles?
  - Successes?
  - Additional education needed?

Vitamin C, Thiamine, Hydrocortisone – *Sepsis "bundle"*

- **Regimen:**
  - Vitamin C 1.5 gm IV Q 6 hours **PLUS** Thiamine 200 mg Q 12 hours X 4 DAYS
  - The above is in addition to IV hydrocortisone 200 mg per day continuous infusion (or 50 mg Q 6 hours IVP)
  - Rationale: synergistic effects in reversing vasoplegic shock in patients with sepsis
    - Vit C – potent antioxidant, preserves endothelial function and microcirculatory flow, works along with HC in decreasing production of pro-inflammatory mediators.
    - Thiamine – deficiency common in septic patients and associated with an increased risk of death and decreases risk of oxalate supersaturation (byproduct of high dose Vit C)and renal impairment.
- **Clinical Data:**
  - Hospital mortality: 8.5% (4 of 47) – treatment group vs 40.4% (19 of 47) – control group
  - Earlier wean of vasopressors, decrease in SOFA scores
  - Limitation – small, retrospective study

Vitamin C, Thiamine, Hydrocortisone – *Sepsis "bundle"*

- **Pharmacy order set available to assist with entering Vitamin C order**
- **Vitamin C injection available as 25 gram single dose vial**
  - In order to prevent waste the IV technicians should draw up the remaining vial contents into syringes (1.5 gm doses) and these can be stored in refrigerator for making additional doses



IV Admixture Errors

- Recent errors highlighted the need for standardized practices
- Angie & Amanda will be leading a work group to evaluate current practices and explore options to make this a more standardized and safer process
- More to come and if you have thoughts/suggestions please let us know

Patrick – vacation notice

- **I will be out of town from 8/23 – 9/4**
  - If you have clinical issues/concerns please contact Karen or other manager for assistance
  - I will not have access to email or phone for much of the time while I am away