

FORMULARY UPDATES

Laura M. Blackburn, PharmD

The following medication was **ADDED** to Formulary:

Medication	Pharmacologic Class & Indication	Prescribing Considerations
Terlipresin (Terlivaz®)	<ul style="list-style-type: none"> Antidiuretic hormone analog Indication: hepatorenal syndrome (HRS) 	<ul style="list-style-type: none"> Restricted to transplant nephrologist, hepatologist, or liver transplant surgeons for HRS Type 1/HRS-AKI. Restricted to HMH IMU or ICU with continuous pulse oximetry monitoring. Contraindicated in patients with cardiac, peripheral, or mesenteric ischemia; SpO₂ less than 90% or requiring supplemental oxygen; Serum creatinine greater than 5 mg/dL or on dialysis Use is limited to patients with a MELD score less than or equal to 20 and are transplant eligibility should be considered as part of the risk vs benefit assessment

To request a medication for formulary review, [click here](#)

Therapeutic Interchange Update:

Review of the [Long-acting beta agonists \(LABA\) and inhaled corticosteroid \(ICS\) combinations](#) confirmed that Breo Ellipta® remains the most cost-effective option of the available LABA + ICS inhalers. When a patient's home inhaler is not available for use while admitted, providers are directed to equivalent Breo Ellipta® doses.

Drug Shortage Updates

The triennial review of our outlining our response to drug shortages was conducted. No changes were required. Providers will continue to be alerted to drug shortages through [weekly email updates](#), and through direct messaging in Epic upon prescribing of medications in short supply. Importantly, providers will be given notice and options to alter prescribed product ahead of a complete outage of a medication when possible.



Also expected to impact the medication supply chain is the fallout from the tornado in North Carolina that damaged a Pfizer manufacturing and storage facility on July 19th. While no shortages due to this event have impacted HM yet, we have taken steps to increase our standing inventory of impacted products and will implement mitigation strategies to avoid impacting patients where there are no reasonable alternatives available.

Link here for a Vizient report outlining the products impacted and recommended mitigation strategies.

The *Pharmacy & Therapeutics News* is dedicated to providing the most current information regarding medication-use policy and formulary issues. Each issue details recently approved actions from the system P&T committee as well as relevant patient safety, pharmacotherapy and drug distribution updates. Entity representatives to the system P&T committee structure can be found [here](#).

Diabetic Ketoacidosis (DKA) Sub-Q Treatment Protocol Pilot Approved

Archana Sadhu, MD

The management of DKA patients traditionally involves an intensive care unit admission with administration of IV insulin.

[Contemporary data reports](#) that Mild-Moderate severity patients (Table Below) may be safely treated in non-ICU settings and with subcutaneous insulin.

Patients with severe DKA, altered mental status, severe kidney, liver, heart or lung diseases, post-transplant patients, or those with pulmonary edema are excluded.

A pilot intervention was approved and will begin at HM The Woodlands. Findings from the pilot will determine if use at other HM sites is acceptable and define the procedures for safe implementation.

^Diagnostic Criteria for DKA and HHS

DKA : blood glucose >250 mg/dL, pH <7.3, serum bicarbonate <18 mEq/L, anion gap >14 and positive ketones (urine or serum) must all be present

Euglycemic DKA : normal to elevated blood glucose (typically <250 mg/dL) but all others are present

	DKA			HHS
	Mild	Moderate	Severe	
Plasma Glucose (mg/dL)	>250	>250	>250	>600
Arterial pH	7.25-7.3	7-<7.24	<7	>7.3
Serum bicarbonate (mEq/L)	15-18	10-<15	<10	>15
Urine ketones	Positive	Positive	Positive	Small
Serum ketones	Positive	Positive	Positive	Small
Effective serum osmolality (mOsm/kg)	Variable	Variable	Variable	>320
Anion gap	12-14	>14	>14	<12
Alteration in sensoria or mental obtundation	Alert	Alert/drowsy	Stupor/coma	Stupor/coma

MEDSAFETY MATTERS!

Amaris Fuentes, PharmD



ISMP Medication Safety Newsletter Links: [Acute Care & NurseERR](#) & [Community/Ambulatory](#)

Hard Stops & Workarounds

ISMP recently provided an [overview](#) on the use of hard stops and their potential for workarounds in acute care settings. Soft stop warnings or advisories communicate potential issues with a medication. They may offer suggestions or advice regarding management of the particular scenario and, depending on design, may require minimal follow-up actions. Hard stops in contrast completely halt the order from progressing and ultimately reaching the patient.

A number of medication safety concerns may warrant the use of hard stops to prevent inappropriate dosing, dispensing, administration, or monitoring. The newsletter provides some examples of hard stop workarounds citing “creative” solutions to providing patient care due to a lack of awareness on the need for a hard stop or recognition of the problem the hard stop is trying to prevent as well poorly evaluated and monitored hard stops. They provide recommendations to appropriately assess the need for hard stops or their workaround potential by determining oversight of these alerts, judicious use, evaluation of EHR systems, assessment for their need when medications are added to formulary, escalation measures for workarounds, and use of objective measures to determine utility coupled with feedback and collaboration with vendors.

Houston Methodist employs both Soft stop and Hard stop techniques to prevent patient harm. When you are presented with an alert, take a moment to assess the guidance, you may avoid an adverse drug event.

MEDICATION SAFETY & POLICY

Amaris Fuentes, PharmD

Immunosuppressant Trough Levels

In response to medication safety events regarding the timing of immunosuppressant trough levels, instructions on tacrolimus (FK506), cyclosporine, everolimus, and sirolimus level orders will call attention to appropriate timing and also link orders to MAR level reminders.

Dose Warnings Updates—Decimal Point Errors

To address decimal point medication dose entry errors, the following updates will be implemented to reduce manual entries & provide clear warnings:

- Addition of a 12.5 dose radio button to spironolactone orders
- Adjustment of critical dose threshold for cardiovascular drugs to 300% (from 500%)

ANTICOAGULATION USE SAFETY

Michael Sirimatuross, PharmD



Bivalirudin Protocol for Mechanical Circulatory Support (MCS) Indication

Given more regular use and favorable pharmacokinetic profile compared to argatroban, bivalirudin was added as an available pharmacy consult for the anticoagulation of MCS patients. Pharmacist-directed dosing and monitoring of bivalirudin for MCS indications will differ from the Heparin Induced Thrombocytopenia (HIT) indication management. When ordering bivalirudin for MCS indications, providers will be required to enter the device type to reduce errors among the different protocols. Pharmacist progress notes and monitoring will be updated to reflect relevant information and the specified dosing and monitoring related to this indication.

ANTIMICROBIAL STEWARDSHIP

Shivani Patel, PharmD

Clostridium Difficile Diagnosis and Treatment Pathway Revisions to Practice

IDSA revised the [C. Diff clinical practice guidelines in 2017](#) and published [a focused update in 2021](#). The guidelines provide guidance on optimal testing strategies, updated treatment recommendations, and the role of added therapies to reduce recurrent disease. Considering this recent data, the SASC and P&T Committees approved the following guidance for the diagnosis and treatment of C. difficile at Houston Methodist.



Diagnosis Pathway Updates

- Both IDSA and ACG guidelines recommend highly sensitive and highly specific testing modalities to discern colonization from active infection using a multistep testing algorithm
- HM now implements a two-step testing algorithm starting with a C. Diff PCR test. If the PCR result is positive, a reflex toxin test is performed to confirm the presence of active disease.
- Both test results are reported simultaneously along with guidance to interpret either concordant or discordant results

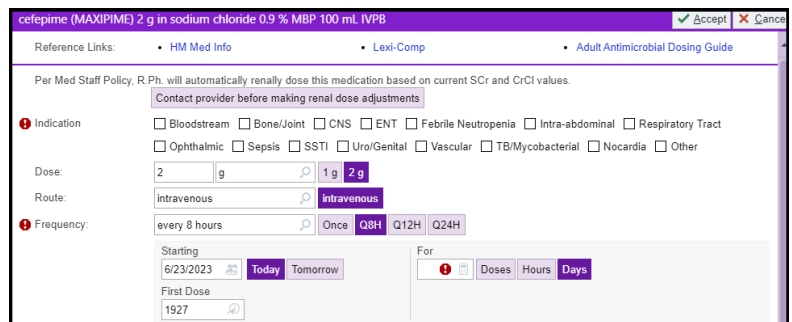
<u>Initial Episode</u>	<u>1st Recurrence</u>	<u>2nd Recurrence or Subsequent Recurrence</u>
<ul style="list-style-type: none"> • Vancomycin 125mg PO QID X 10 days • Fidaxomicin 200mg PO BID X 10 days <p><u>Criteria for Use</u></p> <ol style="list-style-type: none"> 1. Restricted to Infectious Diseases or Gastroenterology 2. Immunocompromised or age ≥ 65 	<ul style="list-style-type: none"> • Fidaxomicin 200 mg PO BID x 5 days, then 200 mg PO once every other day x 20 days • Prolonged Vancomycin Taper • Considerations for adjunctive therapy: Bezlotoxumab 	<ul style="list-style-type: none"> • Fidaxomicin 200 mg PO BID x 5 days, then 200 mg PO once every other day x 20 days • Prolonged Vancomycin Taper • Considerations for adjunctive therapy: fecal transplant

Non-Fulminant Treatment Algorithm

Antibiotic Ordering Optimization

Antibiotic Orders, “Reason For Therapy” Button Removed

To reduce clicks when ordering antibiotics in Epic, the “Reason for Therapy” selection will be removed. Moving forward, providers will continue to select the “Indication” for antibiotics which is needed for CMS compliance and reflects best practices. The “Indications” list will reflect options most appropriate for care of HM populations.



Daptomycin Monitoring Safety Update

The Pharmacy Consult to Monitor CPK Levels in Patients Receiving Daptomycin was assessed. Findings of the review continue to endorse the automatic ordering of baseline CPK levels upon daptomycin initiation and subsequently monitoring CPK levels every 7 days for patients on active therapy.

New guidance is provided for the pharmacist assessment that includes a stratification of actions based on a range of different CPK level results. Also, the daptomycin order panel will be modified to include a CPK level order to promote safe monitoring.

NEWSLETTER STAFF

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