HOUSTON Methodist LEADING MEDICINE

HOUSTON METHODIST
PHARMACY & THERAPEUTICS NEWS
November—December 2024

FORMULARY UPDATES

The following medications and classes were reviewed

Gadopiclenol (Elucirem, Vueway) ADDED to Formulary

Category: Macrocyclic non-ionic complex of gadolinium used for radiologic imaging

Rationale: Possible benefit due to lower gadolinium exposure (50% of gadolinium compared to an equivalent gadobutrol dose per volume)

Pafolacianine (Cytalux®) ADDED to Formulary

Category: Targeted molecular imaging agent that can fluoresce ovarian and lung cancer intraoperatively when used in conjunction with near-infrared imaging.

Rationale: Improved the detection for removing cancerous tissue by 53% and 33% for lung and breast cancer resections respectively.

Ferumoxytol (Feraheme) Formulary Status Updated: Cardiac MRI Use

Category: Iron deficiency replacement agent with utility as a contrast agent in cardiac MRI.

Rationale: Data shows utility for diagnostic imaging purposes in patients undergoing cardiac MRI procedures and has advantages over the current standard of care (gadolinium-based contrast agents) such as a longer intravascular half-life, higher levels of T1 and T2 relaxation, and no risk of nephrotoxicity.

Safety: To avoid confusion among approved uses Epic is configured to guide providers to appropriate dosing for cardiac MRI indications and restrict view to the therapy when patients are not in this care setting.

Sotatercept (Winrevair) NOT ADDED to Formulary

Category: Activin A receptor 2A ligand used for pulmonary hypertension

Rationale: Use is primarily chronic outpatient therapy administered as a sub-Q injection every 21 days and available through specialty pharmacy channels. Patients will be managed through the patient's own medication supply process.

Atezolizumab-haluronidase-tqis (Tecentriq Hybreza) ADDED to Formulary

Category: Antineoplastic Agent, Anti-PD-L1 Monoclonal Antibody

Rationale: Updated subcutaneous dosage form of atezolizumab IV allows a reduction in administration time.

To request a medication for formulary review, **click here**

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.

Formulary Update:

Upadacitinib (Rinvoq)

Rinvoq was assessed for formulary status and was determined to remain NON-FORMULARY. Rinvoq may be continued for inpatients if needed through the patient's own supply process.

Policy Updates

System_PCPS 198 – Herbal and Alternative Therapies Policy Reviewed

A triennial review of the policy for management of situations were herbal therapies are required was conducted.

Under special considerations where interruption in therapy may cause serious patient harm and pursuant to a physician's order, patients may provide their own supplies of herbal or alternative products. In these situations, the pharmacist shall review the order and identify any potential drug-related problems, document any potential adverse effects and/or outcomes in the progress notes of the medical record, and notify the physician of potential problems.

A notification will be placed in the medical record to alert all health care providers that the patient is taking a non-FDA approved medication. If the patient is unable to supply the product, the order will be discontinued, in accordance with System_PCPS 310 - Medications Brought from Home. HM Pharmacy will NOT procure these products.

MEDICATION SAFETY UPDATES

Duplicate Warning Updates

Epic was upgraded to not alert when a provider discontinues an order and placed a new order for the same or a similar medication during the same ordering session, With the enhancement, the duplicate therapy alerts will not fire until a new ordering session or subsequent providers when a similar medication regimen is ordered.

Discharge Instructions Downtime Form

The discharge instructions downtime form was updated for consistency with the Epic build.

Tacrolimus Dosage Form BPA

Tacrolimus has several dosage forms including oral capsules in immediate- and extended-release, oral extended-release tablet, oral suspension, and intravenous solution. When converting between formulations, caution must be exercised to ensure the appropriate dose adjustment due to differences in bioavailability between the formulations. The best practice advisory (BPA) notification is to be enhanced when "sublingual" route is selected in order to ensure criteria for sublingual use is met and the dose adjustment from oral to sublingual is accurately calculated.

Phytonadione Dose Warnings

Phytonadione is used to manage coagulopathy due to vitamin K antagonists or vitamin K deficiency. Doses recommended range from 2.5 to 10 mg. Epic previously did not have a maximum dose alert and was updated with a maximum trigger dose of phytonadione 10mg to prevent incorrect doses being entered in error.

Epic CrCl Calculation for Patients Under 5 feet in Height

Epic did not calculate an estimated creatinine clearance, for patients less than 60 inches (5 feet) in height. Without a calculated creatinine clearance, medication dose warnings will not function. Using the minimum height parameter of 48 inches, Epic was updated to use an ideal body weight of 45.5 kg for females and 50 kg for males to provide a reasonable estimation of creatinine clearance in order to maintain safe guards for patients under 60 inches.

Self Administration of Medications: MAR Documentation

Documentation of self-administered medications in the medical record is required. Current Epic build does not include "self-administration" in the administration details menu leading to inconsistent documentation. To ensure accurate and consistent documentation, "self-administration" has been added to the drop down of administration menu options.

New Respiratory Therapy Frequencies

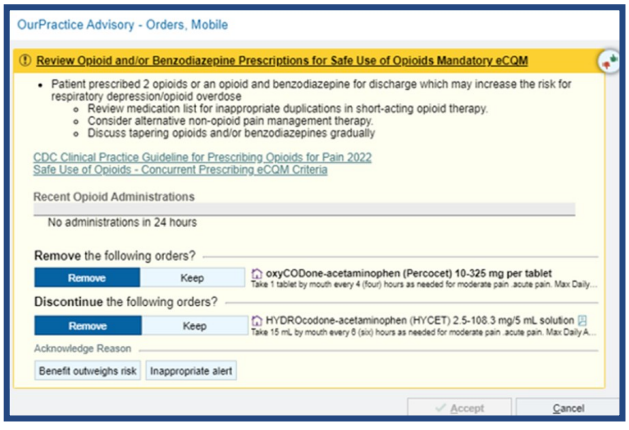
Inhaled amphotericin B liposomal may be prescribed to treat a variety of pulmonary fungal infections including Mucormycosis. The inhalation route is not commercially manufactured so doses are prepared by pharmacy in cryovials to prevent route administration errors. However, doses were not standardized leading to misunderstanding the regimen and incorrect administration. To reduce error potential, dosing was standardized to 50mg and the frequency options updated to include q24 hours and q48 hours. A less frequently used q12 hour option is available if searched.

PAIN MANAGEMENT COMMITTEE

Tatjana Ramos, PharmD

Safe Opioid Use: Electronic Clinical Quality Measure (eCQM)

The Pain Management Committee continues to assess initiatives to reduce unnecessary opioid prescribing at discharge. The Safe Use of Opioids Discharge BPA started 11/5/24 and prompts providers to consider value of prescribing opioids at discharge. If prescribing is indicated, a second quality measure related to co-prescribing naloxone therapy is assessed and a BPA is being piloted to support providers in remembering to co-prescribe when indicated.



ANTIMICROBIAL STEWARDSHIP

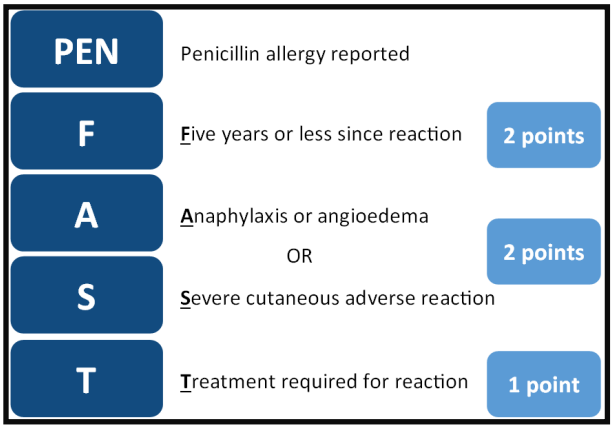
Shivani Patel, PharmD

Microbiology Department BCID Implementation and ID Consult Recommendations

The BioFire FilmArray Blood Culture Identification (BCID2) Panel is an FDA-approved multiplex PCR assay that rapidly detects a number of commonly-identified bloodstream pathogens and resistance markers allowing for rapid, empiric antimicrobial selection. Currently, BCID2 is only applied to Gram-*positive* blood cultures, Because there is no guidance for interpretation of results, infectious diseases specialists review all results. BCID2 has utility for Gram-*negative* cultures also and will be implemented bit with a recommendation for an ID consult for the following organisms: *S. aureus*, vancomycin-resistant *Enterococcus spp*, carbapenemase genes (IMP, KPC, NDM, OXA-48, VIM), and all *Candida spp*.

Penicillin Allergy Clinical Decision Rule: PEN-FAST Updates

HM implemented PEN-FAST assessments in June 2024 to better assess penicillin allergy risk and severity. In a prior 6-month period, 19.8% of allergies reported included penicillin. Today, RNs complete the PEN-FAST assessment in the Admission Navigator. Pharmacists then populate the allergy reaction.



As a quality assurance measure between June to November 2024, 13,608 PEN-FAST patient assessments were assessed. 77.2% of patients had a score less than three. Only 2% of all patients reporting a PCN allergy were documented having a severe cutaneous reaction.

With a validated, reliable PEN-FAST assessment process in place, HM can now take additional actions to minimize unnecessary Epic allergy warnings and promote safe and effective antimicrobial therapy . This includes the removal of (penicillin+carbapenem) and (penicillin+low-risk cephalosporin) cross reactivity Epic alerts. This will enable greater use of cefazolin for surgical prophylaxis which is a preferred agent in the majority of situations. The process will continue to be assessed for safety and the impact on key medication utilization measured. Steps for implementing oral penicillin challenges are being developed to further reduce unnecessary non-penicillin therapy use.

Identifying Pathogenic Organisms in Patients Diagnosed with Pneumonia

The "pneumonia panel" is a multiplex molecular test detecting organisms from respiratory tract specimens within one hour of processing allowing rapid optimization of therapy. The panel automatically runs on respiratory pathogen panels attained from a bronchoalveolar lavage. The test detects an array of Gram-positive, Gram-negative, atypical, and viral pathogens and selected resistance genes and ***has high negative predictive value***, However, *positive results yield little clinical utility.* This guide assists interpretation of the test results.

Pneumonia Panel Result	Recommended Interpretation
Staphylococcus aureus PCR not detected	Consider discontinuing vancomycin
Pseudomonas aeruginosa PCR not detected	Consider de-escalating anti-pseudomonal coverage
Staphylococcus aureus PCR detected but mecA/C and MREJ PCT not detected	MSSA; de-escalate anti-MRSA coverage
Klebsiella pneumoniae PCR detected but no signs/symptoms of pneumonia	Do not start antibiotics

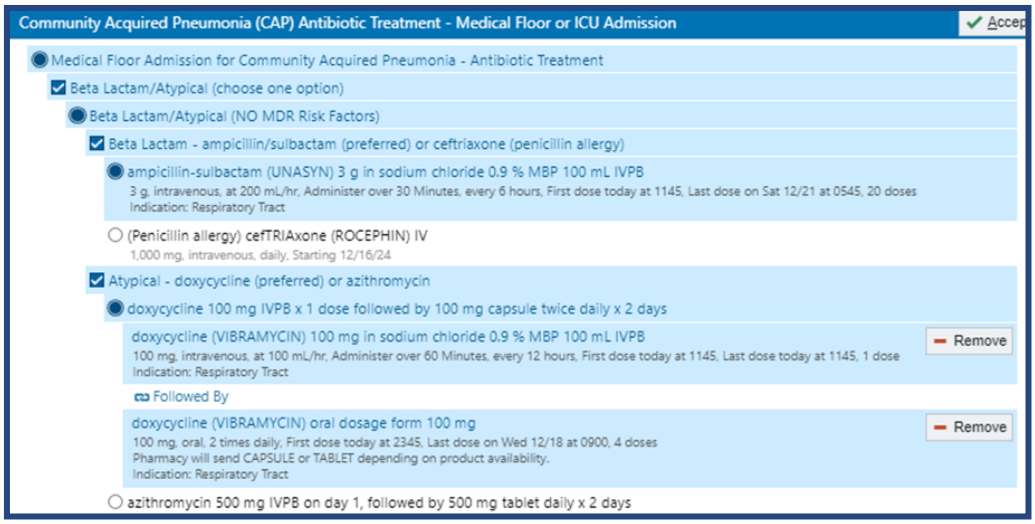
Outpatient Parenteral Antibiotic Therapy (OPAT) Optimization

The System Antibiotic Stewardship Committee continues to review OPAT patient outcomes as an area for improved efficiency and safety. To assure safe, efficient initiation of OPAT therapy, an ID pharmacist consult will accompany OPAT orders. The pharmacist will support physicians in facilitating optimal antibiotic selection, dosing, and will collaborate on transitions of care management. Houston Methodist guidelines for OPAT therapy are under reviewed and will serve as a benchmark for patient selection, product use, dosing, and monitoring best practices.

ANTIMICROBIAL STEWARDSHIP

Community Acquired Pneumonia (CAP) Order Set Updated

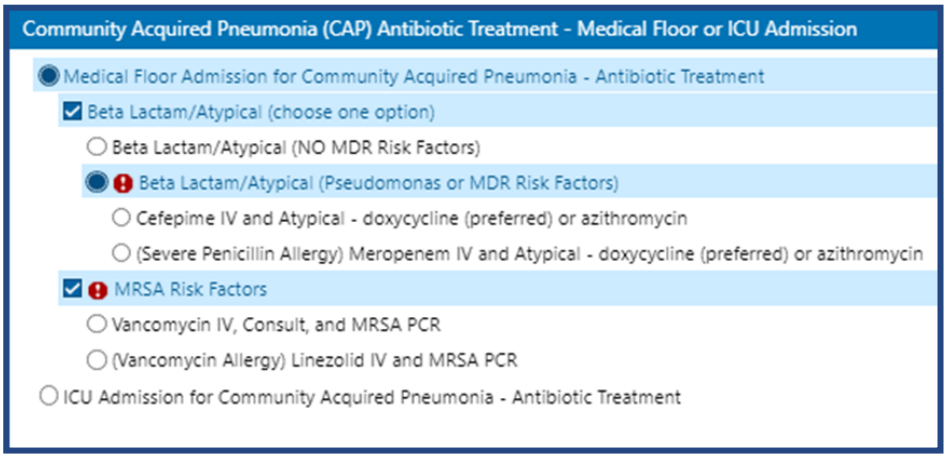
Houston Methodist implemented community-acquired pneumonia (CAP) order sets in October 2024 that align with recommended regimens for treating CAP. The revisions incorporate a new antibiotic panel with updated preferred antibiotics differentiated based on the admission location; floor versus intensive care unit.



Preferred antibiotics for CAP for patients admitted to the acute care floor are ampicillin/sulbactam (Unasyn) AND doxycycline. This shift away from ceftriaxone AND azithromycin provides the same coverage and efficacy but offers improved antimicrobial stewardship benefits and reduced potential for adverse effects.

Ampicillin/sulbactam and ceftriaxone have comparable activity against the most relevant bacterial pneumonia pathogen (Streptococcus pneumoniae) and both are recommended as first line agents by the IDSA.

Ampicillin/sulbactam is less likely to induce the development of extended spectrum beta-lactamases (ESBL's) in gram negative flora[Tacconelli] and potentially less likely to cause C. difficile as well[Webb].



Doxycycline has a similar spectrum of activity to as azithromycin, but has less cardiac toxicity than azithromycin[Ray] as well as less likelihood of causing C. difficile.

Azithromycin is preferred in the intensive care unit as there is some evidence that it improved outcomes in severe cases.

Both ampicillin/sulbactam and doxycycline can be converted to oral regimens to facilitate timely discharge.

Options for patients with risk factors for Pseudomonas aeruginosa and methicillin-resistant Staphylococcus aureus are also available in the order set.

CHEMOTHERAPY STEWARDSHIP COMMITTEE

Adam Smith, PharmD

Carboplatin Infusion Rate Default

The rate at which carboplatin can be infused as a default has been changed from 60 minutes to 30 minutes. The change is supported by literature and patient experience and enables more efficient throughput and patient satisfaction.

HOUSTON METHODIST
PHARMACY & THERAPEUTIC NEWS

DIABETES ADVISORY COUNCIL

Archana Sadhu, MD / Chelsea Lopez, PharmD

Diabetic Ketoacidosis (DKA) / Hyperglycemic Hyperosmolar State (HHS) Protocol Updates

The DKA protocols were updated based on the 2024 guidelines. Three treatment pathways with different insulin regimens were approved: 1) DKA, patient is not ESRD. 2) DKA, Patient is ESRD, 3) HHS. Orders will be available 1/7/2025.

Diabetic Ketoacidosis (DKA) & Hyperglycemic Hyperosmolar State (HHS) Management	
2009 Recommendations	**2024 Recommendations**
Diagnosis	
Diabetes	
Glucose > 250 mg/dL	Glucose ≥ 200 mg/dL or history of diabetes (irrespective of glucose)
Ketonemia	
Any positive ketones in urine or serum	Beta-hydroxybutyrate (BHB) level ≥3 mmol/L in capillary blood or serum, if BHB is not available, then urine ketones ≥ 2+
Acidosis	
Anion Gap >10 AND pH <7.3 AND / OR serum bicarbonate <18 mmol/L	pH <7.3 AND / OR serum bicarbonate <18 mmol/L (anion gap requirement eliminated)
Treatment	
IV fluids	
0.45% NaCl or 0.9% NaCl based on Na levels	0.9% NaCl or balanced crystalloid (Lactated Ringers or Plasmalyte preferred)
250-500 mL/hr	Replace 50% fluid deficit in 8-12 hours
Add D5% when glucose 200 mg/dL	D5% or D10% when glucose <250 mg/dL (<200 mg/dL (initially) for euglycemic DKA)
Insulin	
Does not differentiate guidance for DKA severity or HHS	Defined mild, moderate/severe or HHS
IV insulin only	Subcutaneous insulin included as an option for mild DKA
0.1 unit/kg bolus then 0.1 unit/kg/hr infusion; 0.14 unit/kg bolus if glucose does not fall by 10% in 1st hour	Same but bolus optional; HHS: 0.05 units/kg/hr infusion
Glucose ≤ 200 mg/dL, reduce to 0.02-0.05 units/kg/hr	Glucose < 250 mg/dL reduce to 0.05 units/kg/hr
Potassium Replacement	
K+<3.3 give 20-30 mEq and hold insulin until >3.3mEq/L	K+<3.5 give 10-20 mEq and hold insulin until >3.5 mEq/L
K+ 3.3-5.2 give 20-30 mEq to maintain K+ 4-5 mEq/L	K+ 3.5-5 given 10-20 mEq to maintain K+ 4-5 mEq/L
K+ >5.2 mEq/L, do not give K+	K+ >5 mEq/L, do not give K+
Bicarbonate Replacement	
Only consider if pH <7.0	No change
Phosphate Replacement	
If <1 mmol/L & muscle weakness and/or resp. compromise	No change
Resolution	
Diabetes	
Glucose < 200 mg/dL	Glucose < 200 mg/dL
Ketonemia	
Not applicable	BHB < 0.6 mmol/L
Acidosis	
need 2: pH > 7.3, anion gap ≤ 12, serum bicarbonate ≥ 15	need 1:pH ≥ 7.3, serum bicarbonate ≥ 18

NEWSLETTER STAFF
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System P&T Committee Roster is available to view here.