



University

HOSPITAL

Newark, NJ



Pharmaceutical Care Services Physician Orientation 2023-2024

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Pharmaceutical Services at UH



- Location: **UH B-134**; Open 24/7/365
- Extension: **2-5120, 2-5121, 2-3927**
- Pharmacy Staff (Registered Pharmacists-RPh & Pharmacy Technicians) are responsible for:
 - Reviewing all medication orders for appropriateness and completeness (RPh only)
 - Providing drug information to prescribers and nurse upon request (RPh only)
 - Clinical Pharmacist specialists (MICU, SICU, ED, Infectious disease, Ambulatory – cardiology, liver transplant, Investigational Studies) participate in direct patient care rounds and drug therapy management of the patients.
 - Handling, storage, security, preparing, compounding, and delivery of medications throughout UH
- This module is a quick overview of important pharmacy-related topics all UH prescribers should be aware of

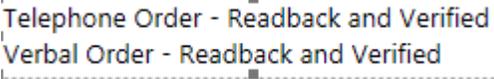
The Pharmacy and Therapeutics (P&T) Committee

Dr. Joseph Apuzzio – P&T Chairman

Pharmacy and Therapeutics Committee is:

- Advisory and Educational
- An advisory group of the medical staff
- Composed of physicians, pharmacists, and other health professionals selected with the guidance of the medical staff
- Serves as the organizational line of communication between the Medical Staff and the Pharmacy Department
- **The P&T Committee meetings are held the 3rd Wednesday of each month except August at 7:30 am to 9:00 am in UH D215.**

Verbal and Telephone Orders

- Verbal communication of orders is discouraged
- Use of secure text messaging for patient care orders is NOT permitted
- As approved by the Medical Executive Committee, nurses and registered pharmacists are allowed to accept verbal medical orders from prescribers
 - **“Read Back Verified by Repetition”**
 - Epic screenshot:

Telephone Order - Readback and Verified
Verbal Order - Readback and Verified
- Verbal orders for anti-neoplastic agents shall not be given or received under any circumstances
- All verbal orders must be authenticated (reviewed and countersigned) as soon as possible, or within 48 hours of receipt of order
- **For questionable orders:**
 - RPH will inform/clarify order with the ordering provider and inform the RN

STAT/ NOW/PRN Medication Orders

STAT and NOW Medication Orders

- “**STAT**” orders for medications will be given immediately – **within 30-60 minutes**. The use of this term should be reserved for emergency situations
- “**NOW**” orders for medications will be administered **within 120 minutes**
- Most medications are stocked in the Pyxis dispensing cabinets on patient floors

PRN Medications

- All “PRN” orders must include specific indication
- **Invalid** order: Diphenhydramine 25 mg PO q4h PRN
- **Correct** order: Diphenhydramine 25 mg PO q4h PRN itching or sleep
- **Invalid** order: Hydralazine 10mg IV q4h PRN Hypertension
- **Correct** order: Hydralazine 10mg IV q4h PRN SBP>140

IV and PO Standard Administration Time Schedules

- **IV Example:**
 - Q8H start at 0400 4-12-20...
 - Q8H start at 0600 6-14-22...
 - Q8H start at 0800 8-16-24...
- **PO Example:**
 - Three times a day
 - 1000-1400-1800



Signed and held orders:

New (held) medication orders and specific instructions from a licensed independent practitioner to administer medication(s) to a patient in clearly defined circumstances that become active upon the release of the orders on specific date(s) and time(s).

Example:

- Oncology orders/treatment plans
- Post op order entered pre-op and to be released post op
- Ambulatory or Same Day Surgery order signed and held until the day of visit and released after patient is registered

Proper Wasting of Controlled Medication Documentation

- Processing a controlled substance waste or a return requires a witness.
- A witness is necessary to document resolution of the discrepancy/waste. The witness will be prompted to enter their user ID and password in the automatic dispensing cabinets (Pyxis). Non-pyxis documentation occurs on the pink sheets sent from the C-2 safe.
- Applies to all C-II, C-III, C-IV and C-V medications
- e.g. Anesthesia providers
- Discrepancies must be resolved immediately

Medication Samples Policy and Procedures

- All new sample medications must be approved by P&T Committee **PRIOR** to the requesting clinic stocking said medication.
- To add a new sample medication, the requesting clinic must complete and submit a “**Sample Medication Formulary Request**” form to the P & T committee
- Pharmacy Administration will **confiscate** medication samples throughout UH that have not been identified by the Pharmacy Department and/or have not been approved by P&T Committee.
- Watch for medication sample recalls
- High risk and look alike policy applies to the medication samples also
- Ambulatory clinics that store medication samples shall be identified. The following areas have been identified as the only areas where sample medications may be stored and dispensed:
 - **ACC:** F-Level Medicine (Dermatology, Endocrinology, UMD Care)
 - **ACC:** OB/GYN Clinic C-Level
- All medication samples will be logged in with the following information:
 - Name and strength of medication
 - Date received
 - Manufacturer and lot number
 - Expiration date of medication
 - Quantity of medication received
 - Balance
 - Signature of receiver

Labeling Requirements for Sample Medications by MD

- Sample medications shall be labeled and dispensed in a standardized manner according to hospital policy, applicable law and regulation and standards of practice.
- *Dispensing labels will be supplied by the Pharmacy Department.*
- Each medication sample dispensed shall be properly labeled with a dispensing label to include but not limited to the following information:
 - Patient name and date
 - Instructions for administration e.g. Take one tablet by mouth twice a day
 - Name of medication and strength
 - Prescribing physician
 - Relevant auxiliary labels (indicated on top of each log sheet, supplied by the Pharmacy Department).
 - Sample medications to follow the hospital's high risk high alert/look alike sound alike, hazardous medication policy as applicable

Medication Reconciliation

- It is a National Patient Safety Goal to accurately and completely reconcile medications across the continuum of care
- The purpose of The Joint Commission's National Patient Safety Goals (NPSGs) is to promote specific improvements in patient safety
- In-patient and out-patient—Ensure the medications the patient is taking prior to admission, during admission, and upon discharge are all appropriate and necessary

2023 National Patient Safety Goals

2023 Hospital National Patient Safety Goals



Identify patients correctly

NPSG.01.01.01

Use at least two ways to identify patients. For example, use the patient's name and date of birth. This is done to make sure that each patient gets the correct medicine and treatment.

Improve staff communication

NPSG.02.03.01

Get important test results to the right staff person on time.

Use medicines safely

NPSG.03.04.01

Before a procedure, label medicines that are not labeled. For example, medicines in syringes, cups and basins. Do this in the area where medicines and supplies are set up.

NPSG.03.05.01

Take extra care with patients who take medicines to thin their blood.

NPSG.03.06.01

Record and pass along correct information about a patient's medicines. Find out what medicines the patient is taking. Compare those medicines to new medicines given to the patient. Give the patient written information about the medicines they need to take. Tell the patient it is important to bring their up-to-date list of medicines every time they visit a doctor.

Use alarms safely

NPSG.06.01.01

Make improvements to ensure that alarms on medical equipment are heard and responded to on time.

Prevent infection

NPSG.07.01.01

Use the hand cleaning guidelines from the Centers for Disease Control and Prevention or the World Health Organization. Set goals for improving hand cleaning.

Identify patient safety risks

NPSG.15.01.01

Reduce the risk for suicide.

Improve health care equity

NPSG.16.01.01

Improving health care equity is a quality and patient safety priority. For example, health care disparities in the patient population are identified and a written plan describes ways to improve health care equity.

Prevent mistakes in surgery

URO1.01.01

Make sure that the correct surgery is done on the correct patient and at the correct place on the patient's body.

URO1.02.01

Mark the correct place on the patient's body where the surgery is to be done.

URO1.03.01

Pause before the surgery to make sure that a mistake is not being made.

Auto-Verification in the Emergency Department

- **The Joint Commission (TJC) requires that a pharmacist reviews all medication orders or prescriptions, with limited exceptions.** These exceptions (outlined below) do allow for limited situations where prospective pharmacy review may not be feasible or required. TJC permits emergency departments to broadly apply these **exceptions which are intended to minimize treatment delay and patient backup**
 - Exception 1: allows medication ordered by a licensed independent practitioner to be administered by staff who are permitted to do so by virtue of education, training and organization policy (such as a registered nurse) and in accordance with law and regulation. A licensed independent practitioner is not required to remain at bedside when the medication is administered. However, a licensed independent practitioner must be available to provide immediate intervention should a patient experience an adverse drug event.
 - Exception 2: allows medication to be administered in an urgent situation when a delay in doing so would harm patient

Automated Dispensing Cabinet (ADC) Override

- **Override:** The process in which a qualified staff member such as a registered nurse, respiratory therapist, or physician, may remove a medication from the ADC, with a verbal order, for urgent or emergent use only and when delay would cause patient harm. Providers will then retrospectively order medication in the EMR.
 - *For example, adult patient post cardiac arrest is hypotensive requiring norepinephrine infusion. Physician is unable to leave patient bedside due to critical nature of the situation. Verbal order is given by physician to start norepinephrine infusion. RN overrides medication from ADC and physician enters the order in the EMR once patient condition stabilizes.*
- For a medication to be accessed through override, a request must be submitted via an override request form (on MCN) and brought to the appropriate committees outlined in the form

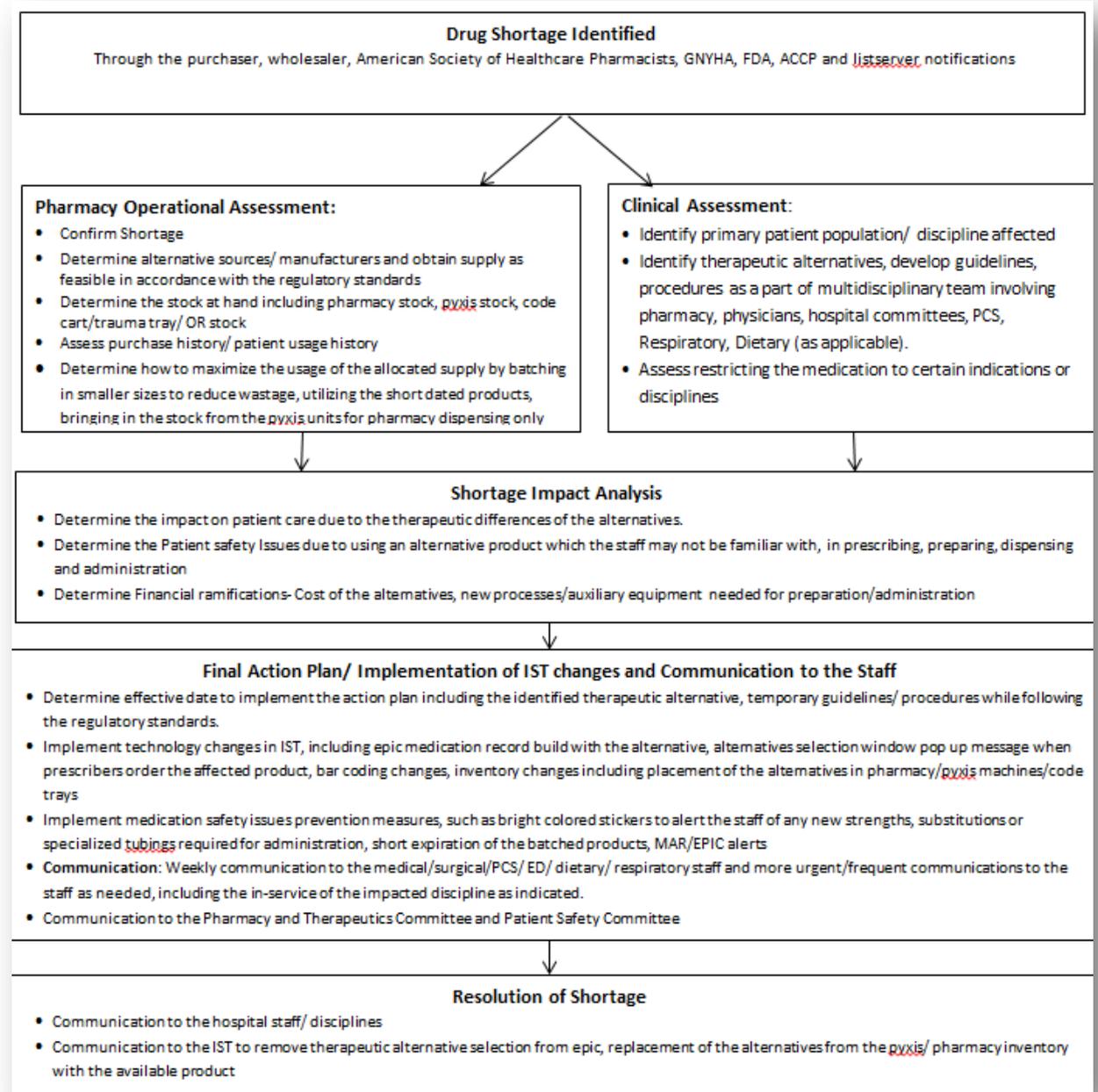
Drug Recall

Once informed, pharmacy staff **confiscates all recalled medications from patient care areas**

- e.g. Automated dispensing machine from the unit
- Drug recall retrospectively reported at the Pharmacy and Therapeutics Committee and Patient Safety Committee
- For Class1 recalls, pharmacy will notify healthcare providers and the inpatients who have received the recalled medication. Also, outpatients discharged up to 6 months prior to recall notice will also be communicated to the best of the institution's ability

Drug Shortages

- Greater than 350 drugs world-wide
- Listing of drug shortages e-mailed weekly for distribution to department chairs, house staff, nursing staff, and other ancillary services
- All drug shortages are reported to P&T Committee monthly
- For long term shortages, the Clinical Pharmacy team with help from medical staff will develop and implement medication substitution practices/protocols



Patient's Own Medications

- Need a prescriber's orders
- Patients can use medications brought from home. **Must be appropriately labeled**
- Patients can self-administer medications (with written order)
 - Use the “Non-formulary Medication” Order in Epic to order a patient's own medication
- Physician cannot bring in patient's own medications
- Patient's own medications must be sent to the main pharmacy for verification and identification. Documented in EPIC

Therapeutic Duplication

- All medication orders are reviewed for therapeutic duplication
- After the medication orders have been reviewed, all concerns, issues or questions are clarified with the individual prescriber before dispensing
- The clarification of concerns, issues or questions with the individual prescribers are documented
- TJC will cite organization for lack of clarification for therapeutic duplications e.g. analgesic medications
- Example:
 - Ondansetron 4mg IV q6h PRN Nausea & Vomiting
Metoclopramide 10mg IV q6h PRN Nausea & Vomiting
 - Albuterol 2.5mg Neb q6h PRN SOB
Ipratropium-Albuterol 3mL Neb q6h PRN SOB
 - Percocet 1 Tab PO q6h PRN Moderate Pain (4-6)
Percocet 2 Tab PO q6h PRN Severe Pain (7-10)
Morphine 1mg IV q2h PRN Severe Pain (7-10)

Therapeutic Duplication

- Duplication will result in pharmacists calling the providers to clarify orders, it is easier and quicker to double check orders before signing
- It should be clear based on the order and patient condition which drug should be given
 - TJC does NOT want RN's prescribing
- PRN reasons must be specified
 - (hint: Epic give you a “hard stop” to put reasons)
- PRN pain orders **ALWAYS** need a pain scale
- Clear delineation!



Therapeutic Duplication Link Orders

oxyCODONE (ROXICODONE) oral liquid 5 mg

Reference Links: 1. Lexi-Comp 2. NeoFax Peds

Dose: 5 mg | 10 mg | 15 mg

Administer Dose: 5 mg
Administer Amount: 5 mL

Route: NGT | Oral | Gastrostomy | PEG Tube | NGT | Jejunostomy

Frequency: EVERY 6 HOURS AS NEEDED | ONCE | Q6H PRN | Q4H PRN | Q3H PRN

PRN reasons: Mild Pain(1-3) Moderate Pain(4-6) Severe Pain (7-10)

PRN comment:

For: 10 | Doses | Hours | Days

Starting: 12/13/2016 | Today | Tomorrow | At: 1059

Starting: Today 1059 Ending: Fri 12/23 1058

Priority:

Admin. Inst.: May administer with food to decrease GI upset. This medication is associated with INCREASED FALL RISK. Please closely monitor patient.

Comments (F5): [Click to add text](#)

Indications: Acute Pain Chronic Pain

Additional clinical indications (300 character max):

Next Required | Link Order

Link orders

oxyCODONE (ROXICODONE) oral liquid 5 mg

5 mg, NGT, EVERY 6 HOURS AS NEEDED starting Today at 1059 until Fri 12/23 at 1058, Moderate Pain(4-6)

Select link type

- Followed by
- Or
- And

Select order

- A copy of the current order
- A new order

Search

Linked Group

oxyCODONE (ROXICODONE) oral liquid 5 mg
5 mg, NGT, EVERY 6 HOURS AS NEEDED starting Today at 1059 until Fri 12/23 at 1058, Moderate Pain(4-6)

Or

oxyCODONE (ROXICODONE) oral liquid 10 mg

Reference Links: 1. Lexi-Comp 2. NeoFax Peds

Dose: 10 mg | 5 mg | 10 mg | 15 mg

Administer Dose: 10 mg
Administer Amount: 10 mL

Route: NGT | Oral | Gastrostomy | PEG Tube | NGT | Jejunostomy

Frequency: EVERY 6 HOURS AS NEEDED | ONCE | Q6H PRN | Q4H PRN | Q3H PRN

PRN reasons: Mild Pain(1-3) Moderate Pain(4-6) Severe Pain (7-10)

PRN comment:

For: 10 | Doses | Hours | Days

Starting: 12/13/2016 | Today | Tomorrow | At: 1059

Starting: Today 1059 Ending: Fri 12/23 1058

Priority:

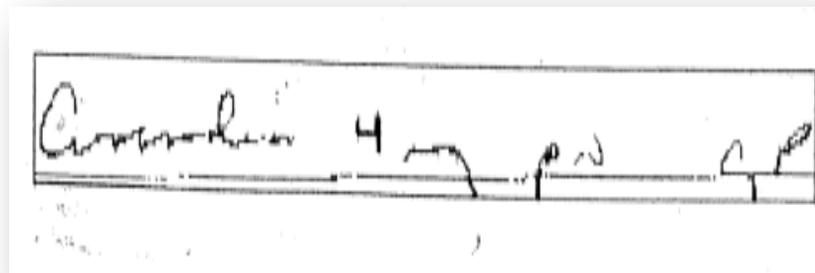
Admin. Inst.: May administer with food to decrease GI upset. This medication is associated with INCREASED FALL RISK. Please closely monitor patient.

Comments (F5): [Click to add text](#)

Indications: Acute Pain Chronic Pain

Look Alike/Sound Alike Medications (LASA)

- Lipid-based Amphotericin products vs. Conventional Forms of Amphotericin
- **DOP**amine and **DOBU**Tamine
- Retrovir®(zidovudine) and Ritonavir
- Pitocin® (oxytocin) and Pitressin® (vasopressin)
- Insulin Products (e.g. insulin regular-NovoLIN R®, HumuLIN R®, insulin NPH- NovoLIN N®, HumuLIN N®, insulin aspart- NovoLOG®, insulin lispro- HumaLOG®, insulin glargine- Lantus®)
- Hydro**OXY**zine and Hydr**ALAZINE**
- Prescribers must indicate indications in Epic (hard stop)  to order LASA medications
- Epic gives warning to the physicians when LASA medications are ordered
- **Can you guess the medication in this handwritten old paper-based system order ?**



High Risk/High Alert Medications (HRHA)

- Chemotherapeutic Agents
(e.g. methotrexate, cisplatin, carboplatin, paclitaxel, docetaxel, vinblastine, vincristine)
- Heparin
- Neuromuscular Blocking Agents (e.g. vecuronium, rocuronium, succinylcholine, cisatracurium)
- Insulin Products (e.g. insulin regular-NovoLIN R®, HumuLIN R®, insulin NPH- NovoLIN N®, HumuLIN N®, insulin aspart- NovoLOG®, insulin lispro- HumaLOG®, insulin glargine- Lantus®)
- Epidural/Intrathecal medications
- Epic gives high risk high alert warnings when HRHA medications are ordered by the physicians

Adverse Drug Reaction/Medication Errors

- Adverse Drug Reaction (ADR): A response to a drug that is noxious and unintended and that occurs when using the drug appropriately.
- Preventable/Non- Preventable
- Medication Error (ME): An error or near miss in prescribing, transcribing, preparing, dispensing or administering a medication
- Safety Intelligence (SI): An electronic database maintained by Vizient®, in conjunction with University Hospital, for reporting, tracking, and trending patient care events.
- Available through available through clinical links website on all UH desktops

<https://uhclinicallinks.uhnj.org/>

Adverse Drug Reaction/Medication Errors

- National average is 2% of all prescriptions/orders have an ADR
- Everyone has a **RESPONSIBILITY** to report
- There is IMMEDIATE notification to the practitioners
- The hospital reviews, assesses, identifies patterns and takes action to prevent any potential patient harm through the event reporting
- Root Cause analysis on events leading to patient harm

Adverse Drug Reaction Reporting

ADVERSE DRUG REACTION (ADR)

A response to a drug that is noxious and unintended and that occurs when using the drug appropriately.

Examples:

- Nausea
- Tremors/Rash
- Seizures
- Hearing Loss

To report an ADR/ME, call **pharmacy (ext. 5120)** or self-report by scanning the QR code or by navigating to <https://uhnj.datixhostingusa.com/Live/index.php>



MEDICATION ERROR (ME) REPORTING

An error or near miss in prescribing, transcribing, preparing, dispensing, or administering a medication.

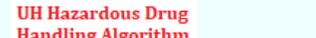
Examples:

- Wrong Rate for IV
- Wrong Dose
- Dose Omission
- Drug-Food Interaction



Clinical Links

<https://uhclinallinks.uhnj.org/>



Order Sets

- A **protocol** requires the patient to meet certain clinical criteria, but there must be an order to initiate the protocol. Example: *ICU insulin infusion protocol*
- A **standing order** is an order that may be initiated without an initial order by the physicians or LIP by the nurse if the patient meets certain criteria. Example: Standing vitamin K or erythromycin ointment orders for newborn
- An **order set** is a list of individually selectable interventions or orders that the practitioner may choose from. Example: General Admission orderset, Sepsis orderset

Order Sets

- The order sets may be generated within a multidisciplinary process team
- Evidence based order sets have Physician Champion, Clinical Pharmacist, Nursing Representation and Multidisciplinary input as needed with a final approval from the hospital designated committee
- Sample order set

Order Set Preview

MED IP CARDIO CHF ADMISSION-TRANSFER [617]
LV function has been assessed prior to admission
-> Yes - ensure proper documentation in patient's record
-> No - appropriate testing is REQUIRED prior to discharge

General
Admit Status
This patient has already been admitted as an inpatient.
This patient has an active transfer order in process.
If you would like to modify the transfer order, please go to Order Management.

Isolation Status

<input type="checkbox"/> Airborne isolation status	Qty-1, Hospital Performed, ROUTINE
<input type="checkbox"/> Contact isolation status	Qty-1, Hospital Performed, ROUTINE
<input type="checkbox"/> Contact and airborne isolation status	Qty-1, Hospital Performed, ROUTINE
<input type="checkbox"/> Contact and droplet isolation status	Qty-1, Hospital Performed, ROUTINE
<input type="checkbox"/> Droplet isolation status	Qty-1, Hospital Performed, ROUTINE
<input type="checkbox"/> Special contact (C-diff) isolation status	Qty-1, Hospital Performed, ROUTINE

Code Status (Single Response)

<input type="radio"/> Full code	Details
<input type="radio"/> DNR (Do Not Attempt Resuscitation, Allow Natural Death)	Details

Condition

<input type="checkbox"/> Stable	Qty-1, Normal, ROUTINE
<input type="checkbox"/> Guarded	Qty-1, Normal, ROUTINE
<input type="checkbox"/> Critical	Qty-1, Normal, ROUTINE

Vitals

Close

Titratable Infusions

- As with PRN medications, infusion titration orders MUST meet TJC requirements to provide all the required core elements
- Titrating medication orders elements shall include
 - A. Medication name
 - B. Medication route
 - C. Initial or starting rate of infusion (dose/unit of time)
 - D. Incremental units the rate or dose can be increased or decreased to achieve the goal
 - E. Frequency for incremental/decrement doses/time (how often dose or rate can be increased or decreased)
 - F. Maximum rate or dose of infusion.
 - G. Objective clinical measure/ endpoint/goal (e.g. blood pressure, Richmond Agitation Sedation Scale -RASS score, Confusion Assessment Method- CAM score) to guide changes
 - H. Condition on when to call Licensed Independent Practitioner (LIP)
- For example, a titrated medication order would say: Norepinephrine drip 8 mg/ 250 ml NS: Dose range: 1 - 30 mcg/min. Start at 5 mcg/min continuous IV. Titrate up or down by 5 mcg/min every 5 minutes until desired goal of MAP 60-65 mm Hg. Contact responsible LIP if at max dose and unable to titrate to goal or persistent MAP less than 55 mm Hg

Titratable Infusions

- Titratable Infusions have dosing questions which must be answered
 - Example questions for Norepinephrine (Levophed®) Drip:

Norepinephrine-Sodium Chloride (Levophed) 8 mg in sodium chloride 0.9% 250 mL(PM) ✓ Accept ✗ Cancel

Dose:

Administer Dose: 1-30 mcg/min

Rate: mL/hr
1-30 mcg/min
= 60-1,800 mcg/hr × 250 mL/8,000 mcg
= 1.88-56.25 mL/hr (rounded to the nearest 0.01 mL/hr from 1.875-56.25 mL/hr)

Route:

Frequency:

For:

Starting: At:

Starting: **Today 1945** Ending: **Mon 6/28 1944**
[Scheduled Times](#)
06/25/21 1945

<input type="button" value="⚠ Titrate to"/>	<input type="button" value="Titrate to SBP (mmHg)"/> <input type="button" value="Titrate to MAP (mmHg)"/> <input type="button" value="Other"/> <input type="text"/>
<input type="button" value="⚠ Initial infusion rate"/>	<input type="button" value="5 mcg/min"/> <input type="button" value="10 mcg/min"/> <input type="button" value="Other (comments)"/> <input type="text"/>
<input type="button" value="⚠ Titration dose increment"/>	<input type="button" value="5 mcg/min"/> <input type="button" value="10 mcg/min"/> <input type="button" value="Other (comments)"/> <input type="text"/>
<input type="button" value="⚠ Titration increment time"/>	<input type="button" value="3 minutes"/> <input type="button" value="5 minutes"/> <input type="button" value="Other (comments)"/> <input type="text"/>
<input type="button" value="⚠ Titration dose decrement"/>	<input type="button" value="5 mcg/min"/> <input type="button" value="10 mcg/min"/> <input type="button" value="Other (comments)"/> <input type="text"/>
<input type="button" value="⚠ Titration decrement time"/>	<input type="button" value="3 minutes"/> <input type="button" value="5 minutes"/> <input type="button" value="Other (comments)"/> <input type="text"/>
<input type="button" value="⚠ RN titrating max rate"/>	<input type="button" value="Ordered dose max rate"/> <input type="button" value="MD to titrate"/> <input type="button" value="Other (comments)"/> <input type="text"/>
<input type="button" value="⚠ Notify prescriber for"/>	<input type="button" value="Deviating from ordered range"/> <input type="button" value="Other (comments)"/> <input type="text"/>
<input type="button" value="⚠ Hold infusion for"/>	<input type="text"/>

Admin. Inst.:

MEDICATION WITH BLACK BOX WARNING. REFER TO PHARMACY DRUG DATABASE OR CONTACT PHARMACY.

One and Done (One and Only)

CDC Initiative and TJC Regulatory Standard

To Prevent Transmission of Infections in Healthcare

1 ONE NEEDLE,
ONE SYRINGE,
ONLY ONE TIME.



Safe Injection Practices Coalition
www.ONEandONLYcampaign.org

Injection Safety is Every Provider's Responsibility

CDC Safety Guidelines

Facts:

Over the last decade, syringe reuse and misuse of medication vials have resulted in dozens of outbreaks and the need to alert over 150,000 patients to seek testing for blood-borne pathogens such as Hepatitis B & Hepatitis C virus and HIV.

Never administer medications from a single dose vial or IV bag to multiple patients.

- An IV bag with mixed medication is considered a single use/single patient product
- Anesthesia practice of mixing bags early in the day for multiple patient use is **NEVER** allowed
- Administration/infusion of “spiked bags” must begin within one hour of spiking
 - Bags must be dated and timed
 - Not dated and timed = out of compliance

CDC Safety Guidelines

Single Dose Vial

- NOT determined by size
- Lacks preservation
- Used for single patient/single dose
- **Puncture only once and discard**

Multi-dose Vial

- Labeled accordingly (MDV)
- Contains preservative
- **Must be used within 28-days** of opening (UH policy 707-800-103)
- Must remain in the medication prep room to be considered multi-use/multi-patient. No other location or scenario is acceptable.

Limit the use of Multi-Dose Vials and dedicate them to a single patient whenever possible. Once a Multi-Dose vial leaves the medication room and goes to a procedural area or patient room, it converts to a single use vial (one patient, one procedure)

ONE & DONE

=

ONE PATIENT, ONE PROCEDURE, AND DISCARD
(Discarding the vial is critical to meeting this standard.)

Multi-dose vials that are brought to the patient bedside should be dedicated to that patient only and discarded after single use. Use by dating is not applicable in these instances.

Bottom Line...

When in doubt
Throw it out!



Adding New Drugs to the UH Formulary

- Any member of the Medical Staff may REQUEST the ADDITION of a drug to the formulary – request reviewed by the Pharmacy and Therapeutics Committee.
- For EACH drug, specific consideration is given to: pharmacologic classification, therapeutic indications, dosage forms available, bioavailability and pharmacokinetics, dosage range, known side effects and toxicities, advantages of the drug over similar agents, disadvantages of the drug compared to similar agents, therapeutic comparisons with other drugs or treatments, cost comparisons with other drugs or treatments and patient safety considerations
- REQUEST for DELETION of a drug from the formulary shall be submitted in writing to the Director of Pharmacy and the Pharmacy and Therapeutics Committee for action. Provide at least 3 weeks before the P&T Meeting
- Any additions/deletions to the formulary communicated through:
 - Quarterly Pharmacy Newsletter
 - Formulary Available electronically and hardcopy on the units



New Drug Formulary Addition Form



PHARMACEUTICAL CARE DIVISION – NEWARK CAMPUS

Formulary Addition Request Form

(To Be TYPED and Completed by the Requesting Attending Physician)

If you have any questions, please feel free to contact the Director of Pharmacy Services
(973)972-3443

MEDICATION DESCRIPTION / INFORMATION:

Generic name:

Proprietary (Trade) name (s):

Manufacturer:

Dosage form (s) and strength (s):

Drug Class:

Similar Drug(s) presently on Formulary:

“Look-alike” or “Sound-alike” drugs:

Mechanism of Action (s) *(describe **unique** pharmacologic properties, if any):*

--

INDICATIONS AND DOSING:

Indication (# patient/year)	Dose/ Frequency/ Duration	Specific Use Criteria (unusual adverse reactions / contraindications)

RISK ASSESSMENT:

Non-Formulary Medications

- Use EPIC Drug Formulary selection
- Pharmacist will provide alternative therapy options
- Requires Approval from Pharmacy Procurement Supervisor, Department Chair, Director of Pharmaceutical Services, Chief Medical Officer, and UH Administrator
- Reviewed on case-by-case basis
- One-Time Non-Formulary Request Form (CPOM)

The image shows a screenshot of a web-based form titled "One-Time Non-Formulary Request Form (CPOM)". The form is enclosed in a dashed border and contains the following fields:

- Name of Drug:** A text input field with a red error icon to its left.
- What is the therapeutic indication?:** A text input field with a red error icon to its left.
- What is the reason for request?:** A text input field with a red error icon to its left and a magnifying glass icon on the right side.
- What is the name of the approving head/chairperson?:** A text input field with a red error icon to its left.
- What is your beeper/contact number?:** A text input field with a red error icon to its left.
- Is this patient supplied?:** A field with "Yes" and "No" radio buttons and an empty text input box.

Herbal (Natural) Products

- Herbal medicines are not permitted to be on the hospital formulary and shall be handled by special request (using non-formulary drug request form) only by the treating physician for those patients who require such medicines
- Pharmacist will not supply herbal medications. Individual situations will be evaluated on a case-by-case basis
- The Pharmacist cannot guarantee outcome, strength, dose or freedom from misbranding, mislabeling or tampering



UH Antimicrobial Stewardship Program: Overview



UH Earns State Recognition for Work with Antibiotics

The State Department of Health (DOH) has named University Hospital a **Gold Award** winner for its efforts to maximize the benefits of antibiotics in curing bacterial infections. The award was earned by the UH Antimicrobial Stewardship Team under the DOH's Antimicrobial Stewardship Recognition Program.

What is Antimicrobial Stewardship?

Coordinated strategies to improve the use of antimicrobial medications

- **Assist** in selection, dosing, and duration of antibiotic therapy
- **Reduce** broad-spectrum antibiotic use when appropriate
- Ultimately, **improve patient outcomes** and reduce hospital costs and duration of stays

ANTIBIOTIC STEWARDSHIP IN YOUR FACILITY WILL



DECREASE

- ANTIBIOTIC RESISTANCE
- C. DIFFICILE INFECTIONS
- COSTS

INCREASE

- GOOD PATIENT OUTCOMES



ANTIBIOTIC STEWARDSHIP PROGRAMS ARE A "WIN-WIN" FOR ALL INVOLVED

A UNIVERSITY OF MARYLAND STUDY SHOWED
ONE ANTIBIOTIC STEWARDSHIP PROGRAM
SAVED A TOTAL OF \$17 MILLION
OVER EIGHT YEARS



ANTIBIOTIC STEWARDSHIP HELPS **IMPROVE**
PATIENT CARE AND **SHORTEN**
HOSPITAL STAYS, THUS **BENEFITING**
PATIENTS AS WELL AS HOSPITALS

<https://www.cdc.gov/drugresistance/threat-report-2013/index.html>

How can Antimicrobial Stewardship Team help you?

- We can help you with...
 - Antibiotic coverage, spectrum, or indications
 - Issues with adverse effects, drug monitoring, or allergies
 - Antimicrobial dosing, pharmacokinetics, or pharmacodynamics, including dosing of vancomycin and aminoglycosides
 - Interpretation of microbiology results including susceptibility testing
 - Antibiotic drug interactions (e.g. Linezolid and SSRIs, amiodarone)
 - Approval with restricted antibiotics

Keep in mind...

- Pharmacist Consult does not substitute for formal Infectious Diseases consultation!
- On occasion, it is expected that a recommendation to seek formal consultation may be the outcome of an interaction with us.

You may see a note from us on EPIC... Read them!

Chart Review

Encounters Medications Lab Microbiology Imaging ECG Other Orders Procedures **Notes** Transcriptions Letters Media Episodes Referrals Misc Reports LDAs

Select All Deselect All Review Selected Load Remaining Preview

Filters Default filter Me Department Provider Notes ID Service Notes Allergy Notes H&P Discharge Summaries Nutrition

To save time not all records have been loaded and sorted. Load All Records Now Hide

Note Time	File Time	Enc date	Enc Type	Department	Status	Type	Author	Author Type	Author Service	HNO ID
Today at 10:46	Today at 10:57	07/03/2018	ED to Hosp-Ad...	E BLUE	Incomp...	Consults	Malik, Khurram, MD	Resident	MEDICINE-INFECTIO...	76569571
Today at 08:17	Today at 08:17	07/03/2018	ED to Hosp-Ad...	E BLUE	Signed	Progress Notes	Mattappallil, Arun	Pharmacist	MEDICINE-INFECTIO...	76565671
Today at 07:42	Today at 07:44	07/03/2018	ED to Hosp-Ad...	E BLUE	Signed	Progress Notes	Blaise, Christine, RN	Registered Nurse		76565085
Today at 05:46	Today at 07:47	07/03/2018	ED to Hosp-Ad...	E BLUE	Cosign...	Progress Notes	Berger, Rachel, MD	Resident PGY1	SURGERY-ONCOLOGY	76564324
Yesterday at 19:16	Yesterday at 19:18	07/03/2018	ED to Hosp-Ad...	E BLUE	Signed	Progress Notes	Fronheiser, Jamie E., RN	Registered Nurse	SURGERY-TRAUMA/...	76561626
Yesterday at 11:15	Yesterday at 13:18	07/03/2018	ED to Hosp-Ad...	E BLUE	Cosign...	Progress Notes	Elgammal, Fatima, MD	Resident PGY1	SURGERY-GENERAL	76559296
Yesterday at 10:45	Yesterday at 10:51	07/03/2018	ED to Hosp-Ad...	E BLUE	Cosign...	Progress Notes	Yeo, Jane, MD	Resident	SURGERY-ONCOLOGY	76558272
Yesterday at 08:42	Yesterday at 10:51	07/03/2018	ED to Hosp-Ad...	E BLUE	Signed	OR PreOp	Batra, Meenu, MD	Resident	ANESTHESIA-PAIN	76557358
07/07/2018 18:53	07/07/2018 19:02	07/03/2018	ED to Hosp-Ad...	E BLUE	Signed	Progress Notes	Fronheiser, Jamie E., RN	Registered Nurse	SURGERY-TRAUMA/...	76553001
07/07/2018 10:04	07/07/2018 10:08	07/03/2018	ED to Hosp-Ad...	E BLUE	Cosign...	Progress Notes	Yeo, Jane, MD	Resident	SURGERY-ONCOLOGY	76549441
07/07/2018 07:30	07/07/2018 12:29	07/03/2018	ED to Hosp-Ad...	E BLUE	Signed	Progress Notes	Manns, Anna Aisha	Physical Therapist	REHAB MEDICINE	76548440

← ↻ 🔍 📄

Assessment/Recommendation: Hide copied text

Pt currently receiving IV Trim/Sulfa (Bactrim) for bacterial pathogens identified from chest wall abscess s/p I&Ds.

Cultures grow polymicrobial growth with MRSA, E.coli, Klebsiella and pending anaerobic GNR. Pt was initially on Vancomycin + Pip/Tazo (Zosyn) until cultures were reported out on 07/06/18. Antibiotic therapy was narrowed down to Bactrim IV on 07/07/18.

Of note, labwork taken from 07/07-present showed increase in serum creatinine levels, with clinical documentation noting Acute Kidney Injury (AKI).

Writer spoke with primary team regarding the antibiotic therapy and current AKI and recommended the following:

- Would consider switch from Bactrim to one of the following regimes:
 - Unasyn (Ampicillin/sulbactam) 3gm q12hr IV + Clindamycin 600mg q8hr IV
 - OR
 - Unasyn 3gm q12hr IV + Doxycycline 100mg q12hr IV
 - These regimes would cover the organisms reported out of cultures and provide additional coverage while pt continues to receive further debridement
- Would also d/w ID team after completion of debridements on final duration of treatment

Submitted by: Mattappallil Arun, RPh
 Cell: 973-856-0347
 Office: 973-973-1250



UH Infectious Disease Clinical Guidelines

UH Antimicrobial Stewardship Website

- The website can be accessed by either:
- <http://uhclinallinks.uhnj.org/>
- Click the ICON with the name “UH Antimicrobial Stewardship Website”



OR



- <http://uhclinallinks.uhnj.org/AMBS/uhnj.html>

Can only be accessed on campus through a computer, smartphone or digital device linked to the UH/Rutgers networks.

UH Infectious Disease Clinical Guidelines

UH Antibigrams

- The website can be accessed by either:
- <http://uhclinicalinks.uhnj.org/>
- Click the ICON with the name “UH Antibigrams”



OR

- <http://uhclinicalinks.uhnj.org/Docs/UH%20Antibigrams.pdf>

Can only be accessed on campus through a computer, smartphone or digital device linked to the UH/Rutgers networks.

UH Infectious Disease Clinical Guidelines

- Available on MCN Policy Manager
- Click this icon available on most UH medical ward desktops



- Web Address (accessible anywhere on any device)
 - <http://universityhospital.ellucid.com>
 - Use CORE Login & Password or NetID & Password
 - Type “ID” on the search bar and press “Enter” key

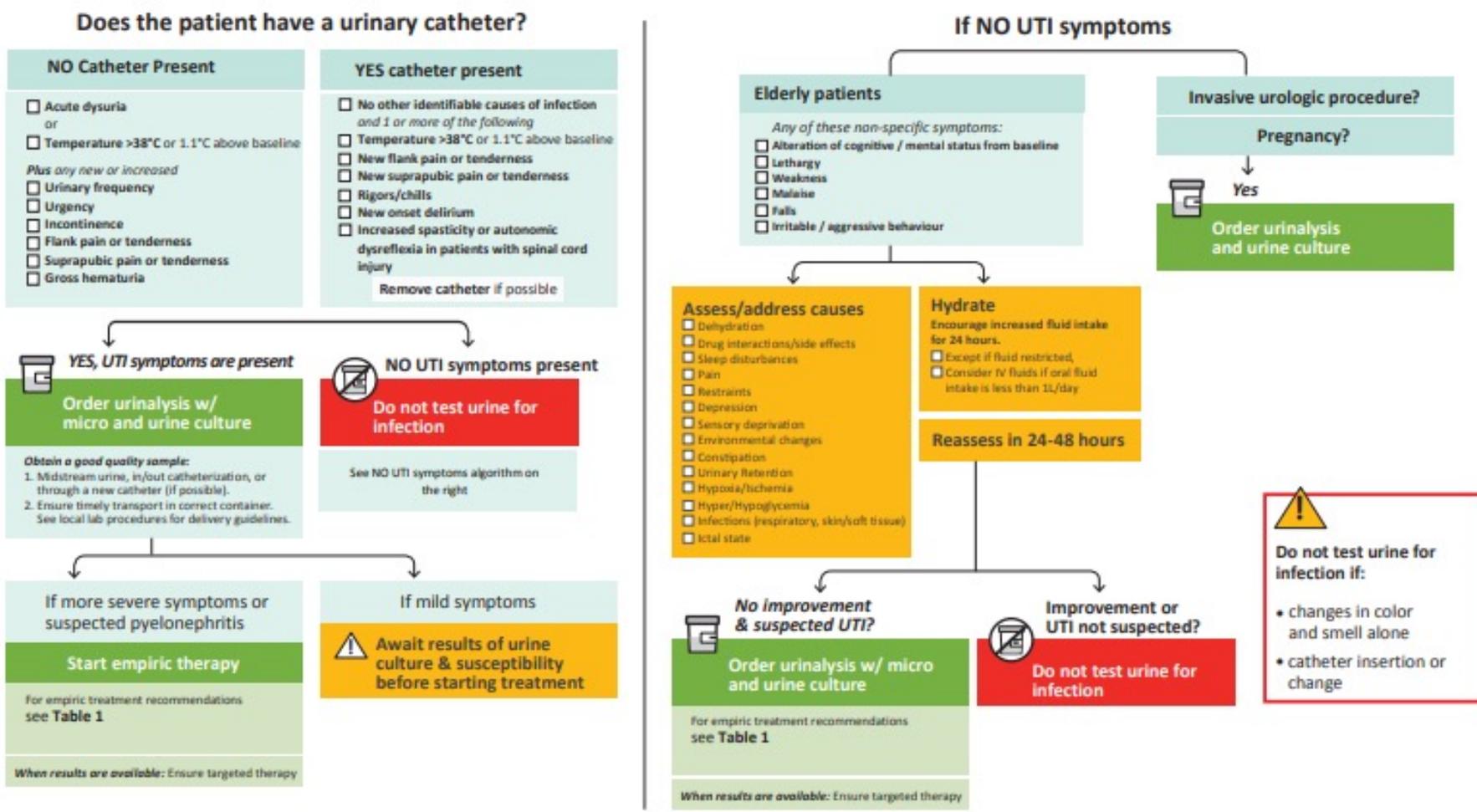
UH Antimicrobial Stewardship Program Links

- Web Address (accessible anywhere on any device)
 - <https://redcap.link/an0u53tp>



University Hospital Adult Urinary Tract Infection (UTI) Guideline

Evidence-based criteria for urine testing (modified with permission from Alberta Health Services)



University Hospital Adult Urinary Tract Infection (UTI) Guideline

Empiric Treatment Considerations for Non-Pregnant Adults

A. Unless guided by current or prior urine culture results, consider these empiric options

- Cephalexin (Keflex®) PO
- Nitrofurantoin (Macrobid®) PO
- Sulfamethoxazole / trimethoprim (Bactrim DS®) PO
- Ciprofloxacin (Cipro®) PO/IV
- Fosfomycin (Monurol®) PO
- Ceftriaxone (IV)

B. Determine location/severity of UTI – this will determine duration of therapy

C. Table 1: Commonly used antibiotic dosing recommendations for non-pregnant adults

Note: Additional diagnostic/treatment considerations are applicable to patients with nephrostomy tubes, urinary diversions such as ileal conduits and spinal cord injury patients. Would consider discussion with ID Consult service, in these instances, as needed.

	Cephalexin (PO)	Nitrofurantoin (PO)	SMX/TMP (PO)	Ciprofloxacin (PO/IV)	Fosfomycin (PO)	Ceftriaxone (IV)
Recommended Indications and Treatment Duration (should be guided by the specific clinical situation and the response to therapy)						
Uncomplicated UTI/Cystitis	7 days (A)	5 days (P)	3 days (P)	3 days (P)	X1 dose (A)	DO NOT USE
Complicated UTI/Cystitis	DO NOT USE	10 days (P)	10 days (P)	10 days (P)	q48h – q72h x 3 doses (A)	DO NOT USE
Pyelonephritis	DO NOT USE	DO NOT USE	DO NOT USE	7-10 days (P)	DO NOT USE	10-14 days (A)
Dose Adjustments with Renal Impairment						
CrCl >50	500 mg q12h	100 mg q12h	1 DS tab (800/160) q12h	PO: 250-500 mg q12h IV: 400 mg q12h	3 grams	1 grams IV q12-24h
CrCl 30-50		DO NOT USE	1 DS tab (800/160) q24h	PO: 250-500 mg q24h IV: 400 mg q24h		
CrCl 10-29	DO NOT USE		1 DS tab (800/160) q24h	PO: 250-500 mg q12h IV: 400 mg q12h		
IHD		500 mg q24h	DO NOT USE	DO NOT USE		
CRRT	500 mg q12h	DO NOT USE	DO NOT USE			
Agent specific comments						
	Generally not used in men with cystitis if concerned for prostatitis	Activity against Enterococcus, VRE	Reasonable in men with cystitis, if concern of prostatitis	Preferred in men with cystitis, if concern for prostatitis	Requires calling micro lab to perform sensitivity testing on bacteria: Useful in patients with multi-drug resistant (eg: ESBLs) bacteria	
Cost	500 mg capsule = \$0.10	100 mg tablet = \$0.77	1 DS tablet = \$0.05	500 mg tablet = \$0.10	3 grams = \$28	1 gram = \$11

(P) = Preferred Option (A) = Alternative Option

UH Antibiogram Location on Epic

Chart Review

Encounters Medications Lab Microbiology Imaging ECG Other Orders Procedures Notes Transcriptions Letters Media Episodes Referrals Misc Reports LDAs

Select All Deselect All Review Selected Lab Flowsheet Route Preview

Filters Hide Canceled Blood Cultures Pseudomonas

Medications and orders also exist in active treatment plans: Venous Access Device

Collection Date/Time	Order	Source	Result Status	Description	Sensitivity	Result date and time
07/04/2018 15:31	Anaerobic Culture	BREAST, RIGHT	Preliminary result	Anaerobic Gram Negative Rods		07/08/2018 13:13
07/04/2018 15:31	Abscess Culture	BREAST, RIGHT	Preliminary result	Moderate Escherichia coli Many Methicilli...	Y	07/08/2018 13:17
07/03/2018 15:55	Abscess Culture	CHEST	Final result	Many Escherichia coli Moderate Methicilli...	Y	07/08/2018 13:51
05/17/2009 17:24	CATHETER TIP C...	TIP	Final result			05/20/2009 07:48
05/17/2009 16:15	URINE CULTURE	CATHETERIZED...	Final result			05/19/2009 09:20
05/17/2009 16:15	BLOOD CULTURE	BLOOD	Final result			05/23/2009 14:40
05/15/2009 10:44	ANAEROBIC CUL...	LOBE	Final result			05/18/2009 12:36
05/15/2009 10:44	AFB CULTURE	LOBE	Edited			07/13/2009 09:51
05/15/2009 10:44	FUNGUS CULTURE	LOBE	Final result			06/12/2009 09:18
05/15/2009 10:44	TISSUE CULTURE	LOBE	Final result			05/21/2009 11:36
05/15/2009 10:42	AFB CULTURE	LOBE	Final result			07/13/2009 09:38
05/15/2009 10:42	FUNGUS CULTURE	LOBE	Final result			06/12/2009 09:18
05/15/2009 10:42	ANAEROBIC CUL...	LOBE	Final result			05/18/2009 12:36
05/15/2009 10:42	TISSUE CULTURE	LOBE	Final result			05/21/2009 11:36
08/11/2005 11:31	GENITAL CULTURE	CERVIX	Final result			08/13/2005 08:56

Scroll to the bottom of any Micro Result

Antibiotic Susceptibility Report
Click for reference

Antibiotic	Concentration	S	Q
TETRACYCLINE	<=4.00	S	
TRIMETH/SULFA	<=2.00	S	<=0.50 S
VANCOMYCIN	2.00	S	

Specimen Collected: 07/04/18 Last Resulted: 07/08/18 13:17

15:31

Related Result Highlights

Anaerobic Culture Preliminary result 7/4/2018

Collection Information

Specimen ID: 18UH-185M80085
Collected: 7/4/2018 3:31 PM
Received: 7/4/2018 4:14 PM

CULTURE SPEC
BREAST, RIGHT

Resulting Agency: UH CLINICAL LAB
YAP-GUINTO, JOSEPHINE
150 Bergen Street
Newark NJ 07103

Call Information

Department: Cent
7/3/2018 E Blue
2:24 PM

Lab Information

Lab: UH CLINICAL LAB
150 Bergen Street
Newark NJ 07103

Communication for Abscess Culture

Contact	Occurred	Topic
✓ E BLUE 973-972-4300	07/07/2018 11:19 by Zero, Tereza	Critical

Results called to and read back by RN. JANE YEO
Date/time: 07/07/18 11:20 AM.
Lab Tech: Zero, Tereza
Methicillin/ Nafcillin resistant S.aureus.
Initiate contact precautions.
Modify antibiotic therapy appropriately.

Patient Specific Antibigram Location on Epic

Susceptibility History

Collected	Specimen Source	Micro Result	METHICILLIN/CLAVULANATE BKR	MERICILLIN	MERICILLIN/SULBACTAM	TREONAM	CEFAZOLIN	CIPROFLOXACIN	CLINDAMYCIN	ERTAPENEM	ERYTHROMYCIN	GENTAMICIN	Inducible Clindamycin	LEVDFLOXACIN	MEROPENEM	Nafcillin	PENICILLIN	RIFAMPIN	TETRACYCLINE	TRIMETHOPRIM/SULFAMETHOXAZOLE	VANCOMYCIN
06/28/19	PLEURAL FLUID	Body Fluid Culture Coagulase Positive Staphylococcus species																			
06/27/19	BLOOD	Blood Culture Candida (Torulopsis) glabrata																			
06/27/19	BLOOD	Blood Culture Methicillin/Nafcillin Resistant Staphylococcus Aureus																			
06/27/19	BLOOD	Blood Culture Candida (Torulopsis) glabrata																			
06/26/19	BLOOD	Blood Culture Gram Positive Cocci In Clusters																			
06/26/19	BLOOD	Blood Culture Methicillin/Nafcillin Resistant Staphylococcus Aureus																			
06/26/19	BLOOD	Blood Culture Candida (Torulopsis) glabrata																			
06/26/19	BLOOD	Blood Culture Methicillin/Nafcillin Resistant Staphylococcus Aureus																			
06/26/19	SPUTUM	Sputum Culture Citrobacter koseri(diversus)	S	R	S	S	S	S	S	S	S	S	NEG	R	S	R	R	S	S	S	S
06/26/19	SPUTUM	Sputum Culture Methicillin/Nafcillin Resistant Staphylococcus Aureus	R	R	R				S		R	S	NEG	R		R	R	S	S	S	S
06/26/19	SPUTUM	Sputum Culture Candida albicans																			
06/25/19	BLOOD	Blood Culture Methicillin/Nafcillin Resistant Staphylococcus Aureus																			
06/25/19	BLOOD	Blood Culture Methicillin/Nafcillin Resistant Staphylococcus Aureus	R	R	R				S		R	S	NEG	R		R	R	S	S	S	S
06/25/19	BLOOD	Blood Culture Citrobacter koseri(diversus)	S	R	S	S	S	S	S	S	S	S			S					S	

Seek review for approval, prior to order entry of restricted antibiotics!

iL/hr, Intravenous, CONTINUOUS, Starting Sun 3/18/18 at 0000, Until Sun 3/25/18 at 1029
hours 9 minutes. [Reorder] [Let Expire] [Modify] [Discontinue]

Y, 17 doses, First dose on Wed 3/21/18 at 1400, Last dose on Sun 3/25/18 at 1400
hours 40 minutes. [Renew] [Let Expire] [Modify] [Discontinue]

BestPractice Advisory -

⚠ Restricted Anti-Infective

This medication is a restricted anti-infective. Approval for use must be obtained, unless the order is exempt per [UH policy \(click here\)](#).

To obtain approval, contact the UH Antimicrobial Stewardship Team (Call: 973-856-0347, TigerText: UH ASP, Email: UHASP@uhnj.org available Mon-Fri 7 AM - 5 PM) or the Infectious Diseases fellow/attending on-call (available 24/7).

[OK]

Meropenem [New]

Select order mode [Next]

New Orders

- ⚠ meropenem (MERREM) 1,000 mg in sodium chloride 0.9
- ⚠ % 100 mL IVPB

1,000 mg, Intravenous, EVERY 8 HOURS, 21 doses with the First Dose Today at 2200, Last dose on Fri 3/30 at 1400

ORDER ENTRY, VERIFICATION, AND PROVISION OF RESTRICTED ANTI-INFECTIVES (12/2018)

Category I: High Restricted Infectious Diseases Consultation and Approval must be requested, prior to use		
Generic Name	Rationale for Restriction**	Criteria for Exemption
Ceftaroline	1, 3	No Exemptions
Ceftazidime/avibactam	1, 4	
Cidofovir	1, 4	
Foscarnet	1, 4	
Pentamidine	1, 4	
Category II: Restricted AP Approval must be requested, prior to use		
Generic Name	Rationale for Restriction**	Criteria for Exemption
Amphotericin B	1	No Exemptions
Liposomal amphotericin B	1	
Anidulafungin	4	
Aztreonam	1, 2	Unrestricted in any setting, when ordered by Obstetrics/Gynecology service providers
Colistimethate sodium	1, 4	No Exemptions
Daptomycin	4, 5	
Ertapenem	5, 6	
Fosfomycin	1	
Linezolid	4, 5	
Meropenem	5, 6	Unrestricted in any ICU setting for 5 days only
Micafungin	4	No Exemptions
<i>Non-formulary anti-infective*</i>	1, 4	
Polymyxin B	1, 4	
Tigecycline	1, 4	
Voriconazole	4	
*Non-formulary anti-infective <ul style="list-style-type: none"> Order must be entered in accordance with policies/procedures for non-formulary medications 		

CLOSTRIDIUM DIFFICILE PANEL

Order: 107465586

Status: Final result
 Visible to patient: No (not released)
 Next appt: None

0 Result Notes

	Ref Range & Units	8 d ago
<input checked="" type="checkbox"/> CLOSTRIDIUM DIFFICILE PCR	Negative	Positive !
<input checked="" type="checkbox"/> CLOSTRIDIUM DIFFICILE TOXIN	Negative	Positive !

 Clostridium Difficile Interpretation

Comment: Positive for C. difficile toxin B gene by molecular PCR assay. Positive for C. difficile toxin by immunoassay. Contact isolation is required. Antibiotic treatment is typically indicated. Repeat testing within 14 days is not indicated."

Resulting Agency [UH CLINICAL LAB](#)**Narrative** Performed by: UH CLINICAL LAB

Results should be interpreted in conjunction with information available from other relevant tests and the patient's clinical profile. If you have any questions, please call the Molecular Diagnostics Laboratory at (973) 972-3339 or 6544. The performance characteristics of the FDA approved PCR test were verified by the University Hospital Molecular Diagnostics Laboratory. This test is used for clinical purposes. The Laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88) as qualified to perform high complexity clinical Laboratory testing.

Jie-gen Jiang M.D., Director

Specimen Collected: 03/28/21 16:16

Last Resulted: 03/29/21 17:36

CLOSTRIDIUM DIFFICILE PANEL

Order: 107560310

Status: Final result
 Visible to patient: No (not released)
 Next appt: 04/19/2021 at 08:30 AM in Cornea Ophthalmology (Mohammad Dastjerdi, MD)

0 Result Notes

	Ref Range & Units	4 d ago
<input checked="" type="checkbox"/> CLOSTRIDIUM DIFFICILE PCR	Negative	Negative
<input checked="" type="checkbox"/> CLOSTRIDIUM DIFFICILE TOXIN	Negative	Testing Not Indicated

 Clostridium Difficile Interpretation

Comment: "Negative for C. difficile toxin B gene by molecular PCR assay. Repeat testing within 7 days is not indicated."

Resulting Agency [UH CLINICAL LAB](#)**Narrative** Performed by: UH CLINICAL LAB

Results should be interpreted in conjunction with information available from other relevant tests and the patient's clinical profile. If you have any questions, please call the Molecular Diagnostics Laboratory at (973) 972-3339 or 6544. The performance characteristics of the FDA approved PCR test were verified by the University Hospital Molecular Diagnostics Laboratory. This test is used for clinical purposes. The Laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88) as qualified to perform high complexity clinical Laboratory testing.

Jie-gen Jiang M.D., Director

Specimen Collected: 04/01/21 13:45

Last Resulted: 04/02/21 14:11

CLOSTRIDIUM DIFFICILE PANEL

Order: 107465555

Status: Final result
 Visible to patient: No (not released)
 Next appt: None

0 Result Notes

	Ref Range & Units	10 d ago
<input checked="" type="checkbox"/> CLOSTRIDIUM DIFFICILE PCR	Negative	Positive !
<input checked="" type="checkbox"/> CLOSTRIDIUM DIFFICILE TOXIN	Negative	Negative

 Clostridium Difficile Interpretation

Comment: "Positive for C. difficile toxin B gene by molecular PCR assay. Results indicate colonization. Neither toxin A nor toxin B is detected by immunoassay in the specimen submitted. Contact isolation is required. Antibiotic treatment may be indicated in certain circumstances. Repeat testing within 14 days is not indicated."

Resulting Agency [UH CLINICAL LAB](#)**Narrative** Performed by: UH CLINICAL LAB

Results should be interpreted in conjunction with information available from other relevant tests and the patient's clinical profile. If you have any questions, please call the Molecular Diagnostics Laboratory at (973) 972-3339 or 6544. The performance characteristics of the FDA approved PCR test were verified by the University Hospital Molecular Diagnostics Laboratory. This test is used for clinical purposes. The Laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA-88) as qualified to perform high complexity clinical Laboratory testing.

Jie-gen Jiang M.D., Director

Specimen Collected: 03/26/21 16:18

Last Resulted: 03/29/21 17:35

UH Antimicrobial Stewardship: Future Plans

- Pharmacy-based interventions
 - Vancomycin dosing
 - IV to oral conversion

Antimicrobial Stewardship Team Contact Information:

- Call: 973-856-0347
- Email: UHASP@uhnj.org
- Epic Secure Chat: UH Infectious Disease Pharmacists
- Available: Mon-Fri 7 AM - 5 PM



Debra Chew, MD, MPH
Epic Secure Chat: Type my name
Cell: 973-650-8002



Arun Mattappallil, PharmD
Office: 973-972-1250
Epic Secure Chat: Type my name
Cell: 973-856-0347



Nadeem Baalbaki, PharmD, AAHIVP
Office: 973-972-4807
Epic Secure Chat: Type my name
Cell: 973-800-2189

National Patient Safety Goal: Anticoagulants

1. Protocols & Guidelines:

- a. heparin nomogram orderset,
- b. Heparin Induced Thrombocytopenia orderset
- c. Anticoagulant reversal guideline:
<https://universityhospital.ellucid.com/documents/view/4163>
- d. UH Peri-Op anticoagulant guide:
<https://universityhospital.ellucid.com/documents/view/4693>

2. Baseline lab required prior to anticoagulant start

<https://universityhospital.ellucid.com/documents/view/3665>

Medication	Baseline labs within prior 72hrs
Apixaban	CBC, SCr, aPTT, LFT
Argatroban	CBC, aPTT, LFT
Bivalirudin	CBC, SCr, LFT, aPTT or ECT
Dabigatran	CBC, SCr
Enoxaparin	CBC, SCr
Heparin	CBC, aPTT or ECT
Rivaroxaban	CBC, SCr, LFT
Warfarin	CBC, PT/INR,

National Patient Safety Goal: Anticoagulants

- A. Patient and family **education** required elements on anticoagulants (must document these elements discussed)
 1. **Adherence** to dose & schedule
 2. Importance of **f/u** appointments & lab testing
 3. Drug-Drug or Drug food **interactions**
 4. What to look for in **Adverse Drug Reactions**

National Patient Safety Goal: Anticoagulants

Monitor Anticoagulant in EPIC for overview: summary>Index>medication-anti-coag

Summary

← **Index** Overview ADT Event Report MAR ADMINISTRATIONS MAR Admins-DateRange Comp Flowsheet ▾

Select Font Size

Click on any report to launch it, then click the back arrow at upper left to return to this index.

Vitals and Flowsheet Data

- Comprehensive Flowsheet
- Overview
- Vitals (24hrs)
- Vitals Graph
- Weights
- RN Shift Assessment
- LDA Documentation

Results

- Labs - Last 72 Hours
- Labs - Entire Admission

Orders

- Active Orders
- Signed and Held Orders
- Signed and Held Order Sets
- Orders Needing Cosign
- Peri-Operative Orders

Medications

- Current Meds
- Medication History
- Anti-coagulation Dosing
- Fever/antibiotic Dosing

Time:	ED EMER...	OPERATING ROOM E LEVEL					E POST ANEST. CARE		G BLUE PCU						
		06/25 0700 - 06/26 0659					06/26		06/27 0700 - 06/28 0659					06/28	
	0930	0948	1000	1115	1714	0603	1211	2140	1141	1324	1711	0615	0616	1223	
Anticoagulants															
Warfarin (mg)								2.5				2.5			Warfarin (mg)
Increase INR agent															
CeFAZolin INJ (mg)			2,000	2,000											CeFAZolin I...
CefePIME IV (mg)							1,000		1,000					1,000	CefePIME I...
Decrease INR agent															
Sodium Chloride 0.9 % Soln (mL)			1x												Sodium Chl...
Labs															
INR	2.5						2.8				2.6		2.3		INR
APTT	35.4						47.8				50.9		47.3		APTT
PLT	120					85	90				93			106	PLT
SCr	7.5					7.6	8.6				7.5			9.2	SCr

IV to Oral/ feeding tube Interchange Policy:

- **Purpose**

- Ensure appropriate use of IV medications
- Minimize risk of IV catheter-related infections
- Maximize patient quality of life
- Optimize cost effectiveness

- **IV to PO/feeding tube Medications**

- Acetaminophen (Ofirmev[®]) to 975mg PO/via tube q6h
- Digoxin (Lanoxin[®])
- Famotidine (Pepcid[®])
- Folic acid
- Fosphenytoin (Cerebyx[®])/ phenytoin (Dilantin[®])
- Levetiracetam (Keppra[®])
- Levothyroxine (Synthroid[®])
- Metoclopramide (Reglan[®])
- Multivitamin
- Pantoprazole (Protonix[®])
- Thiamine < 200mg
- Antibiotics are **not automatic** (azithromycin, ciprofloxacin, clindamycin, doxycycline, fluconazole, levofloxacin, linezolid, metronidazole, rifampin, voriconazole, trimethoprim/sulfamethoxazole)

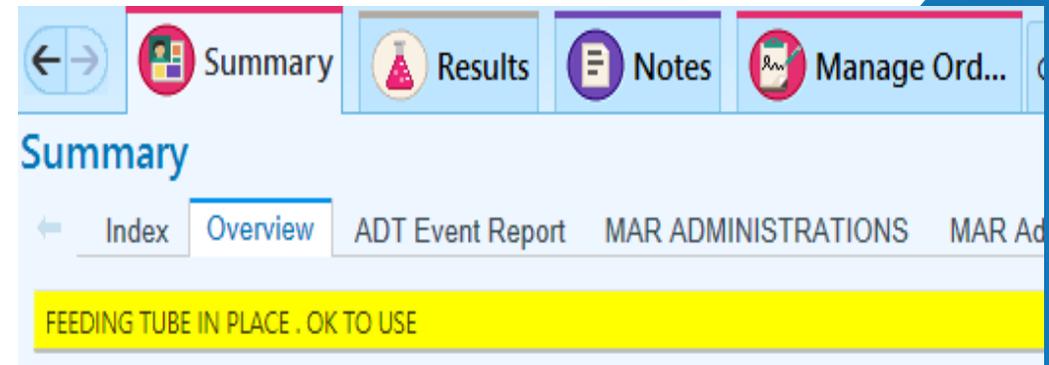
Automatic Oral to Feeding tube route & vice versa

- Once Feeding tube placement is confirmed (X-ray)
- Order “Feeding tube OK to use: ? Inserted tube type” – type ‘OK’

Feeding tube placement confirmed, ok to use.

- PLEASE dc above order when tube is removed to prevent continual med route change to enteral routes by Rx

- Triggers workflow downstream: banner visible during verification
- Rx automatically changes active meds to appropriate formulation for the route
- Authorized by Pharmacy & Therapeutics (P&T) Committee: Per protocol



Automatic Stop Order Policy

- Unless a physician orders for a specific duration of therapy all drugs (see 2.4 specific exemptions) will expire after 30 days
 - 2.1) No medication Order can be written for longer than 30 days.
 - 2.2) No “Duration of Hospital Stay” orders can be written.
 - 2.3) No “Continuation of all medications” or “resume previous orders” can be written.
 - 2.4) Specific Exemptions.
 - a) ALL controlled medications (CII-V) -240 hours (10 days) exception IV infusions as specified under 2(m)
 - b) Warfarin - 24 hours
 - c) Steroids 240 hours (10 days)
 - d) For potassium replacement refer to policy 707-600-157
 - e) Oral phosphate supplements: 72 hours
 - f) Antibiotics orders: 7 days (168 hours) unless specified below:
 - a) IV Piperacillin-Tazobactam: (3 days (72 hours)
 - b) Post-operative prophylactic antibiotics (e.g. SCIP)

Automatic Stop Order Policy continued

- g) Intravenous solution with or without additives shall be valid for 72 hours from time written unless specified.
- h) Ketorolac injectable and tablet 5 days (not renewable).
- i) Sodium polystyrene sulfonate 24 hours.
- j) Nebulizer Medications (3 days)
- k) Low Molecular Weight Heparin (e.g. enoxaparin) and Heparin Subcutaneous 30 days
- l) Albumin order 24 hours
- m) All IV drips (e.g. midazolam, Fentanyl, Morphine sulfate, PCA, dopamine, dobutamine etc.) shall be valid for 72 hours from time written unless specified.
- n) All orders for ondansetron shall be valid for 48hours from the time written unless specified.
- o) IV acetaminophen- 4doses, subsequent doses need anesthesia approval
- p) Filgrastim (5 days)
- q) Calcitonin injection- 24 hours

Total Parenteral Nutrition (TPN) Orders

- All neonatal TPN orders can be written for up to 8 days (if starting on a Tuesday, otherwise any subsequent changes are valid until the following Tuesday) or sooner if specified.
- All Adult TPN orders can be written for 24 hours.
- All TPN orders must be received in the Pharmacy (B-134) no later than 12 noon daily.
- The TPN orders are mixed by an outside contracted company. We send our daily orders to them and they deliver the prepared bags to the pharmacy after 200pm. Once we receive the prepared bags, we send them up to the floors.
- Changes or modifications to the TPNs made after 12 noon will be effective the following day.
- “Starter TPN” is available for Neonates (Called “Starter Nutrition”) and Adults (Clinimix®)

Summary [Show TPN Medications](#) ▾
 Report:
 Order Inst.: **Order must be in pharmacy before 12:00 NOON Daily. DAY 1 TPN please use 8-12 kcal/kg CHO. If actual weight <...**

Volume: mL [1,500 mL](#) [1,800 mL](#) [2,400 mL](#) [3,000 mL](#)

Rate: mL/hr
 mL / 24 hr
 = 0 mL/hr

Administer Over: Hours [12 Hours](#)

Route: [Intravenous](#)

Infusion Site:

Weight Type: [Recorded](#) [Ideal](#) [Adjusted](#) [Dosing](#) [Order-Specific](#)
 76.8 kg 70.7 kg 73.1 kg

Recorded weight: 76.8 kg (recorded 29 days 7 hours ago)

Frequency: [Continuous TPN](#) [Continuous TPN](#)

For: [Hours](#) [Days](#)

Starting: 7/1/2021 [Today](#) [Tomorrow](#) At: 1800 [Show Additional Options](#) ▾
 Starting: **Today 1800** Ending: **Tomorrow 1759**
[Scheduled Times](#) ⤴
 07/01/21 1800

Admin. Inst.:

Prod. Admin. Order must be in pharmacy before 12:00 NOON daily.
Inst.:

Note to Pharmacy: [+ Add Note to Pharmacy \(F6\)](#)

Amino Acids (Selection Required)

FreAmine III 10 %

Plenamaine 15 % g/kg [0.8 g/kg](#) [1 g/kg](#) [1.2 g/kg](#) [1.5 g/kg](#) [2 g/kg](#)

Dextrose (Selection Required)

Summary [Show TPN Medications](#) ▾
 Report:
 Reference **1. Lexi-Comp** **2. Neonatal TPN Guidelines**
 Links:
 Order Inst.: **If patient is not feeding, TPN is based on 100 mL/kg. For peds (11-20 kg) 1000 mL +50 ml/kg for each kg greate...**

Volume: mL

Rate: mL/hr

Administer Over: Hours [12 Hours](#)

Route: [Intravenous](#) [Intravenous](#)

Infusion Site:

Weight Type: [Recorded](#) [Dosing](#) [Order-Specific](#)
 2.62 kg

Recorded weight: 2.62 kg (recorded 11 hours ago)

Frequency: [CONTINUOUS](#) [ONCE](#) [Continuous](#) [Q24H](#)

For: [Hours](#) [Days](#)

Starting: 7/1/2021 [Today](#) [Tomorrow](#) At: 1315 [Show Additional Options](#) ▾
 Starting: **Today 1315** Ending: **Fri 7/9 1314**
[Scheduled Times](#) ⤴
 07/01/21 1315

Admin. Inst.: [+ Add Administration Instructions](#)

Prod. Admin. (none)
Inst.:

Note to Pharmacy: [+ Add Note to Pharmacy \(F6\)](#)

Dextrose

Dextrose g/100 mL [3 g/100 mL](#) [4 g/100 mL](#) [5 g/100 mL](#) [7.5 g/100 mL](#)
[10 g/100 mL](#) [15 g/100 mL](#)

[Show Ingredient Information](#)

Amino Acids

trophamine g/100 mL [1 g/100 mL](#) [2 g/100 mL](#) [3 g/100 mL](#) [4 g/100 mL](#)

[Show Ingredient Information](#)



Total Parenteral Nutrition Orders (Adult)

Total Parenteral Nutrition Orders (Neonatal)

Chemotherapy Orders

- Outpatient Chemotherapy/Biotherapy orders are prepared and administered Monday-Friday 8am-4:30pm (except holidays)
- Inpatient Chemotherapy/Biotherapy orders are prepared and administered during the same time, but off-hour exceptions for emergency circumstances can be accommodated.
- Phone extension for Chemotherapy Satellite Pharmacy: **2-6847**

Chemotherapy Orders

- All Chemotherapy/Biotherapy orders must be entered via CPOE, and must be signed by a credentialed oncologist or attending with privileges to order chemotherapy.
- Out-patients orders must be signed no later than 2 PM the day prior to the patient's scheduled treatment, while
- In-patient chemo administration orders must be signed no later than 10 AM the day of chemotherapy administration except in case of oncologic emergencies that require prompt treatment.

Healthy Heart Program at UH

- Multidisciplinary team consisting of Cardiologist, HF APN, Pharm D, Case Manager, Social Worker, Respiratory therapist, and a Registered dietician.
- Multidisciplinary rounds occur three days a week on Monday, Wednesday, and Friday on the following floors:
 - I. I-Blue
 - II. I-Yellow 1
 - III. I-Yellow 2
- Patients with a diagnosis of systolic or diastolic heart failure are evaluated by the multidisciplinary team to ensure all guideline directed therapy and care plans are being followed, where appropriate.
- Medication reconciliation is completed and patients are provided education on their medication changes as well as their disease state.
- Assist patients in obtaining medications at discharge by communicating with outpatient pharmacies and insurance companies

Healthy Heart Program at UH

- For resources including updated guidelines, order sets & policies, and educational materials please visit:
 - <http://uhclinicalinks.uhnj.org/> and select Heart Failure ToolKit

Propofol is a control medication at UH

UH Pharmacy Department rolled out a policy to treat propofol as a controlled medication across all UH units and departments on May 2nd, 2023

- Propofol is documented and wasted according UH policy for controlled substances and need a witness for inventory and wasting

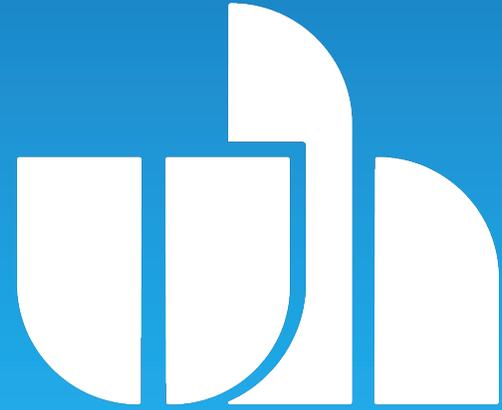
Useful Websites

- Clinical Pharmacology: <https://www.clinicalkey.com/pharmacology/>
- Lexicomp: <https://online.lexi.com>
- UH Policies and Procedures: <https://universityhospital.ellucid.com/userLogin>
- UH Net: <http://www.uhnj.org/uhnetweb/>



Questions?





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Newark, NJ