ICAHN SCHOOL OF MEDICINE AT MOUNT SINAI

Intern Guide | Mount Sinai Internal Medicine

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Adapted from: Kaitlin Klipper's "How to be An Allstar Intern on Sinai Floors"

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Disclaimer

While we have made every effort to ensure this guide is up to date, policy changes throughout the year may render parts of this document inaccurate. We encourage you to use this guide as a supplement to information disseminated by the residency, departmental, and institutional leadership. If you note any errors, please contact one of the Medicine Chief Residents so the guide can be updated.

Introduction

The inpatient floors at Mount Sinai can be fast-paced and challenging, but we hope you find your time on the floors rewarding, educational, and fun! You will always be working as a member of a close-knit team led by an attending physician and a senior resident who are responsible for teaching and guiding you in the care of your patients. The Medicine Chief Residents are committed to your education and wellbeing, so please do not hesitate to contact them with questions or concerns.

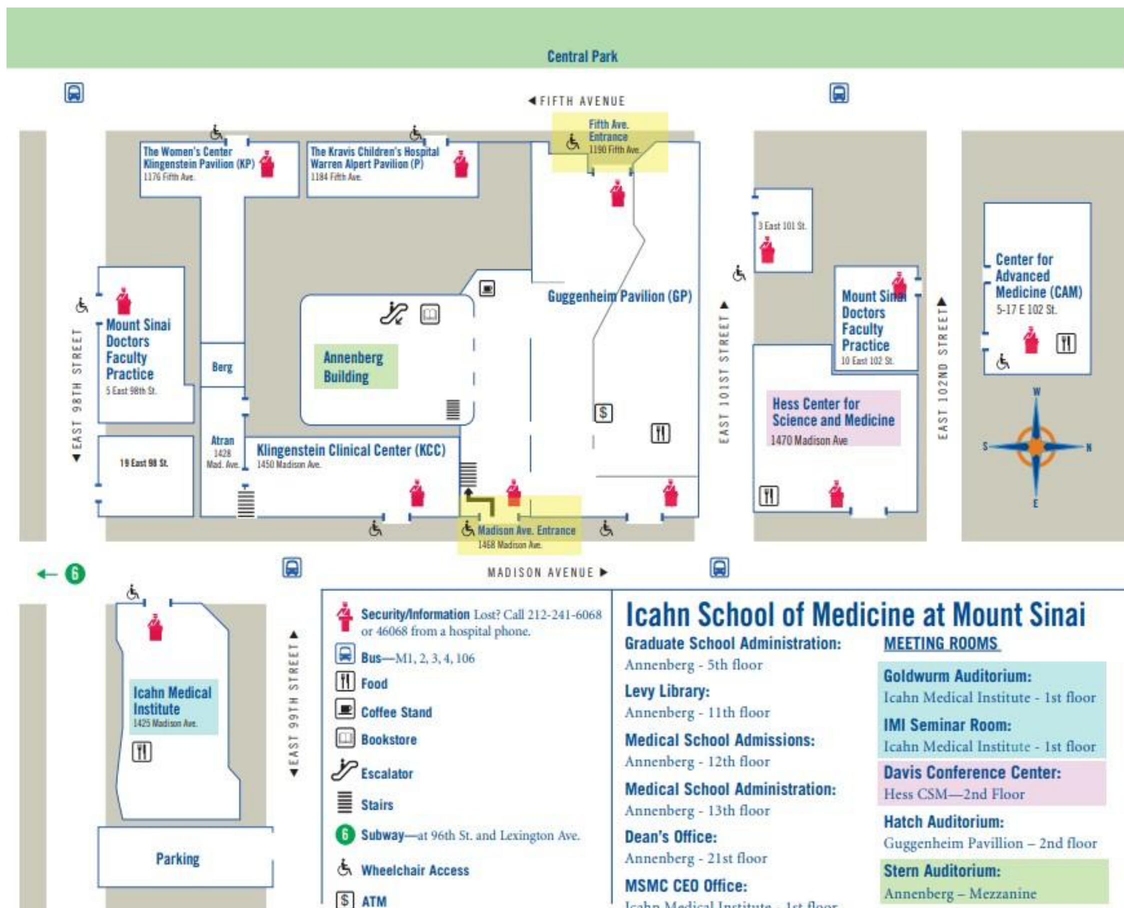
First Day Logistics

Before the First Day: Getting Epic Access and Sign-out

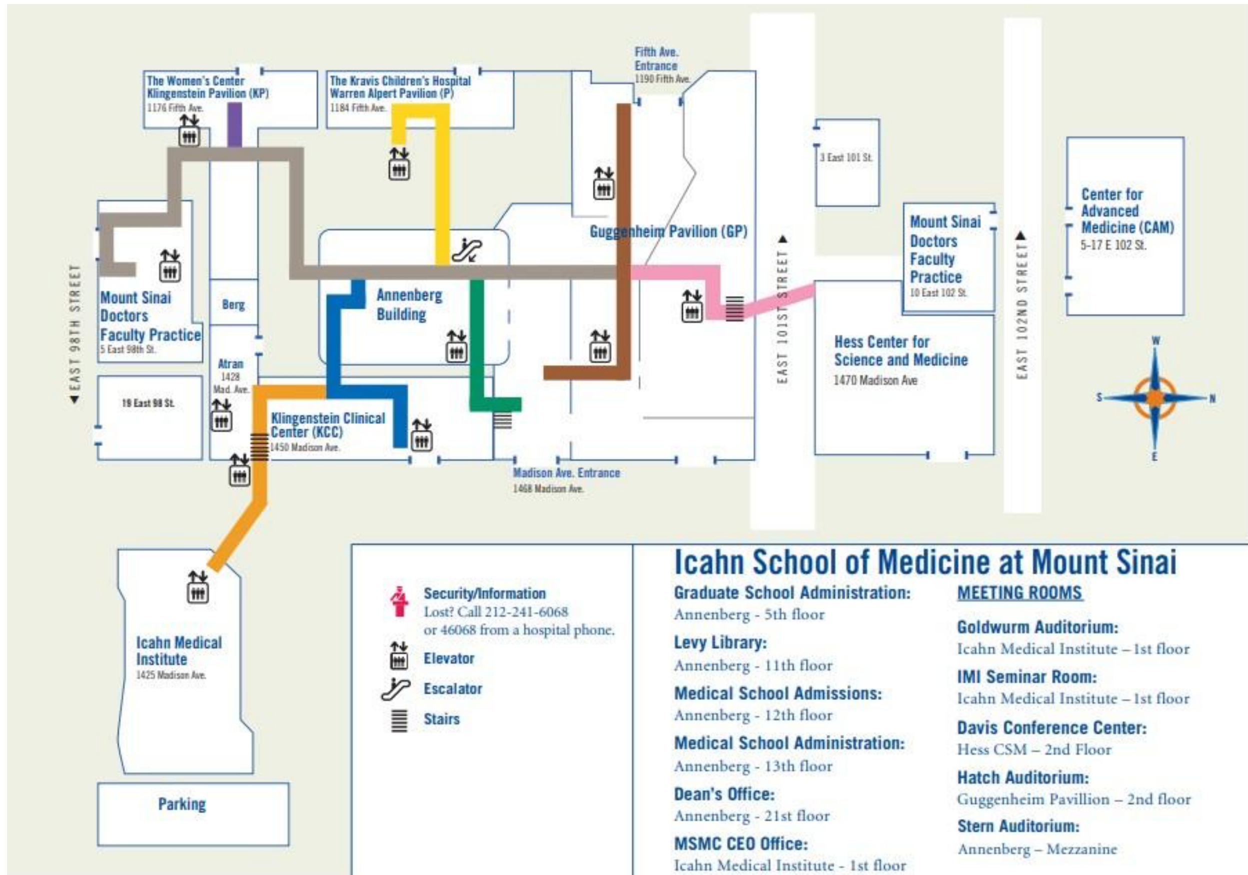
Try to ensure your Epic access is up and working. If you encounter any problems, your first step is to call 4HELP (Epic Helpline). If they can't solve your problem, then the next best place to go for questions is the medicine office (9W-178). Your resident and you should receive sign-out from the prior team via email.

Dress Code: scrubs on inpatient, business casual on outpatient

Campus Map Aboveground



Campus Map with Connecting Tunnels



Daily Schedule

Time	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
6:30 AM	Arrive, get overnight signout and pre-round	Arrive, get overnight signout and pre-round	Arrive, get overnight signout and pre-round	Arrive, get overnight signout and pre-round	Arrive, get overnight signout and pre-round	Arrive, get overnight signout and pre-round	Arrive, get overnight signout and pre-round
7:30 AM	Work rounds with resident	Work rounds with resident	Work rounds with resident	Work rounds with resident	Work rounds with resident	Work rounds with resident	Work rounds with resident
8 AM	Attending Rounds	Attending check-in 8:30-9:30 AM Grand Rounds Social Work/ Discharges	Attending Rounds	Attending Rounds	Attending Rounds	Attending Rounds **(Resident presents new patients)**	Attending Rounds **(Resident presents new patients)**
10 AM	Social Work and Discharges	Attending Rounds	Social Work and Discharges	Social Work and Discharges	Social Work and Discharges	Clinical work	Clinical work
11 AM	Clinical work	Clinical work	Clinical work	Clinical work	Clinical work		
12 PM	Noon conference	Noon conference	Noon conference	Noon conference	Noon conference		
1 PM	Clinical work	Clinical work	Clinical work	Clinical work	Clinical work		
Short Call	3PM signout	3PM signout	3PM signout	3PM signout	3PM signout	**6:30PM Signout**	**6:30PM Signout**
Long Call	8PM signout	8PM signout	8PM signout	8PM signout	8PM signout		

AM Sign-Out

Sign-out from the night float interns is 6:30 AM. Sign-out is typically in the 10W team room and you will be getting sign-out from the **night intern** covering your service. Specialty services typically sign out in their own team rooms, or on their floors.

To get to the main team room, ask for the West Elevators of the Guggenheim Pavilion when you get to the hospital main entrance. Take the west elevators to the 10th floor and walk down the long hallway in the direction of '10W'. Before the room with a vending machine, you will have the option to go right (to the ward) or left. Go left and the team room is the last door on the right.

Storing your belongings: the medicine locker rooms are in the back hallway of 11E. The rooms are accessible with your life number. Find an empty/open locker and set a 4-digit code for the day (make sure to remember your code!)

Pre-Rounding

1) Get sign out as above, you'll see everyone you get sign out about; don't worry about seeing new patients from overnight.

2) Print a patient list. Log onto epic; context is 'Medicine' or '40'. Once you get to the main screen, click 'patient lists' tab on the top left. Under "Available Lists" on bottom left, click on folders: Services MSH > Medicine > ex: Silver B. Your resident will teach you all how to make patient lists the first day and personalize them.

3) Open the patient list of your team (see above). Click on one of your patients to preview; double-click to open their chart.
    a) Under the 'Summary' tab, you'll find subheadings that allow you to view patient Vitals; there is often also a 'Meds History' tab that allows you to view recent medications they received or are due to receive.
    a) Under 'Chart Review' and 'Notes' you'll find recent notes filed by RN and the patient's consulting and primary teams
    b) Under 'Results Review' you'll find recent laboratory testing results

4) Remember, the most important part of pre-rounding is physically **seeing and assessing** the patient. Make sure to text or call your senior if anyone appears to be unstable or decompensating. We'll figure out all the patient date information later, together.

Typical Day

6:30AM: Receive sign-out

6:30-7:30AM: Pre-round on your patients

7:30-8:30AM: Meet with your resident to work round/run the list (RTL)

8:00-10:00AM: Round with the attending(s) and hear about new patients from the overnight intern

10:00-12:00PM: We take care of business! Discharge patients, place consults and orders, follow up tests. The resident may go see patients during this time. Depending on the rotation, there may be social work rounds during this time (e.g. Silver medicine).

12:00-1:00PM: Noon conference! Try to attend each date. Residents will take over interns' epic chats during intern report.

1:00-3:00PM: Finish up the remainder of work. Short call intern/resident will leave for the day.

8:00PM: Sign out to night float

PM Sign Out

The most important things to remember are emphasizing recent events in the hospital course. What are events you would like to know about? Did the patient have a procedure this AM? Did they refuse dialysis? Did they recently start/get a dose of a med that frequently leads to adverse events, such as heparin or furosemide? Please highlight potential overnight events: things you anticipate happening overnight (hypoxia in someone getting aggressive fluids, fever in a septic pt, hypotension, etc) with a description of EXACTLY what you would want the night float to do about it.

Update the handoff nightly with pertinent **to-dos**. Sometimes to-dos are simple: repleting electrolytes, going to check on a patient, but if there's someone you are worried about, consider seeing the patient with the night float so they can get a baseline.

Where to Go

Most of your patients will be located in Guggenheim Pavillion (GP). Some will be on KCC5N/KCC5S (Klingenstein Clinical Center) as well. Unless otherwise specified, patient units are in GP. Some of the specialty services are localized to specific locations:

Cardiology: 7C, 7E

Heme/Onc: 11E, 11C, 10C

Liver: Mostly 9C

Stepdown: 9W, 10E, 6W

MICU: 5W

CCU: KCC6S

Important Phone Numbers

For an on-the-go resource, download the Mount Sinai Inpatient App: https://inpatient.careteamapp.com

Acute Rehab: 45417
Bedboard: 47461, 45030
Bloodbank: 46101
Body Reading Room: 30048 Cath
Lab: 45881
Dialysis: 48081
ER CT: 47606
ED US: 47606
ED XR: 41862
ENT consult: p2510
Film Library: 47407
Hammer/Niebart (ID): p2562, 212-427-9550 (office)
Hemophilia: 48303
HLA typing: 44175, 34207
ID Approval: p9407
Infection Control: 89450
Interventional Radiology: p7237, 40856
Medical Examiner: 212-447-2030, 212-447-2413
Medical Records: 47601
Microbiology: 88162
MRI Reading Room: Extremities - 48607, Body - 59414
Neuroradiology: 44261
Nuclear Cardiology: 41719
Nuclear Medicine: 46969
OR Desk: 41990
Pain Service: Acute - 646-592-0195, Chronic - 646- 592-0084
Pathology slides: 42675
Pathology reports: 47373
Patient Rep: 88990
Physical Therapy Hotline: 42363
Psychiatry consult: p1702, 88828
Radiation Oncology: 47500 (outpatient), 46158 (inpatient)
RRT: 1778
Respiratory Therapy Supervisor: p2244
SLP: p9897, 49542
Social Work: 46800
Transport: 44443
Ultrasound: 48913 (outpatient), 47431 (inpatient)
Ultrasound Reading Room: 39806
Vascular Access: p2VAS, 47854
XR/General Radiology: 47401
MRI: 4918

RAPID RESPONSE: PAGE 1778

Note: This group of critical care physicians, nurse practitioners, and respiratory therapists. They can be your best friends in a tight spot, and can also help with **triaging patients**, e.g., upgrading to MICU vs determining if an admission is safe for the floor.

How to Page:

- To page someone in medicine: amion.com (password msmed), enter text page
- To page someone at Sinai NOT in medicine: amion.com (password mssm)
- To page using the phone: Dial 41300 > Enter 4 digit pager **then** pound (#) > Enter your call back number and pound again (#)

How to Call:

All internal phone numbers at Sinai as 5 digits, starting with the numbers ‘4’, ‘5’ or ‘8’. To call an internal number from outside the hospital, you can use the exchanges ‘241’, ‘824’ and ‘659’ respectively. For example, if you get paged to 45678 and aren’t in the hospital, you can call (212) 241-5678 to reach that number.

The Nitty Gritty

Discharging a Patient:

1) On the day prior to discharge, place an order for **IDP** (Implement discharge plan). It signals to the care team to start working on d/c

2) Let the **social worker** know in ADVANCE (they should be updated at SW rounds every AM as well). Also needs to be informed of services the patient will need at home and transport patient will require home.

3) **Discharge follow-up appointments**: Write the dates and times out in the d/c summary. We have wonderful discharge coordinators to help us with appointment scheduling. Use the Epic Chat group "MSH C5N CS5 C4S 10W 9W D/C F/u Appointments" for assistance from the discharge coordinators.

4) **Discharge med rec:** Discharge (tab on left) > Med Rec > (a) confirm home meds, (b) reconcile meds (decide what you want to resume on discharge [and what dose] and what you want to stop, (c) New orders for discharge [new meds you will be starting on d/c under 'place new orders' AND 'Discharge Orders- Mount Sinai Hospital'] > (d) Review and sign

5) **Complete discharge summary:** Start by selecting new note, under 'Note Type' type in 'Discharge Summary' All discharge summaries are due in the chart within 48 hrs of discharge, however if a pt is going to SAR or nursing home, the SW will often need this PRIOR to the patient leaving.

Transferring a Patient:

1) Write a transfer of care note, which should include the HPI and hospital course
2) Call the receiving team and give sign-out
3) Place a "Transfer Patient" order in Epic

DAY TO DAY USEFUL FACTS AND TIPS

Useful Order Sets

In 'Order' start typing as below, and make sure to add these sets to your favorites!

- General Medicine Admission: for new admission
- Diabetic Agent: to order insulin
- Heparin drip protocol: standard target vs. low target
- Stop Sepsis Order set: allows pt to get first dose of abx faster
- Blood administration set: to transfuse blood products
- Hyperkalemia order set: will allow you to select one or more pre-set medications to treat hyperK

Consents:

- Located in 'Patient Works' on desktop
- Can ask BA for help with this. No matter what computer you use, will print to main printer by BA
- Consent patient or phone consent proxy; place signed consent in front of chart

Risks of Basic Procedures:

- *Blood transfusion:* fever, allergic reaction, infection, shortness of breath, rarer risk includes damage to internal organs including lungs and blood cells
- *Paracentesis:* pain, bleeding, infection, rarer risk includes damage to internal organs including bowel (can inform pt that we use ultrasound to significant decrease risk of damage to organs)
- *Internal jugular triple lumen catheter placement:* pain, bleeding, infection, rarer risk include pneumothorax (can inform pt that we use ultrasound to significant decrease risk of pneumothorax)
- *Lumbar puncture*: back pain, headache, leg pain, bleeding, infection, rarer risks include lower extremity weakness/numbness and other neurological damage

NPO Logistics:

- Can order 'NPO except sips with meds' if meds necessary, be sure to indicate timing, e.g. 'starting now' vs 'effective at midnight'
- Insulin orders > half lantus (if type 2 DM) and hold mealtime lispro when pt is NPO
- Procedures requiring NPO: All surgical procedures, any procedure with sedation or anesthesia, EGDs, RUQ u/s, abdominal ultrasound, Upper GI series, Renal artery dopplers, TEE, cath, and any other procedure for which you are told to make the pt NPO

How To Call a Consult:

- Locate contact on amion (password: mssm)
- Introduce yourself to consultant and state reason for consult
- Give pt's name, MRN, and location
- Prepare a concise, **focused** story (ie, If you are calling an ID consult, you should know the fever curve, CBC, prior culture data, etc)
- Ask if there is any more information (labs, imaging, etc.) that the consultant would like

Learning the Lingo:

- *BA:* Business Associate, sits at the front of each floor; answers phones and does administrative tasks

- *MAPA:* Medical Admitting Physician Assistant, will call or Epic chat your resident with admissions; assist with transfers to other teams/services. Contact x43319, x40042, or 78773

- *MCR:* Medical Consult Resident, will help you overnight with sick patients, provides medical assistance to non- medicine services as a consultant

- *TR*: Teaching resident, works alongside MCR to assist with overnight admissions

- *ED location terminology:*

    RESUS = resuscitation area for sick patients

    RETU = observation area

    Acute A/B = acute but stable patients

Epic Chat Best Practice:

DO	DON'T*
Assign yourself to your patients during active care, set your availability, and forward messages when on break	**Forget to unassign yourself after active care and change your availability to away or offline**
• Send non-urgent requests or concerns	• Send urgent requests or concerns
• Raise clinical concerns	• Report unstable vital signs
• Use professional EMR language	• Use unprofessional language or ALL CAPS
• Use closed loop communication	• Leave questions or requests unanswered
• Ask clinical questions	• Discuss clinical disagreements
• Report abnormal ! lab values or imaging	• Report critical !! lab values without verbal confirmation
• Use as your main texting modality when including Protected Health Information (PHI).	• Use other non-HIPAA compliant texting modalities (such as WhatsApp, iMessage, and mobile text messages) when including PHI.

Use AMION to page or call instead for urgent matters.

Scan the QR code to view our entire *EpicChat* best practices guide.

As of 3/2023, subject to changes in policy. Developed by the MSH Internal Medicine Residency Professionalism Committee

Common Clinical Scenarios/Anticipatory Guidance:

Infection Management

If meeting SIRS criteria (at least 2: T>38C or <36C, HR>90, RR>20, WBC 12K)

- Evaluate patient in person and ask for localizing infectious symptoms
- Collect infectious work-up (CBC, blood cultures x 2, ICU venous, +/-CXR, +/-Rcx, +/-UA/Ucx +/-procalcitonin)
- Consider starting broad-spectrum antibiotics (check micro history for prior resistance)
    - Can order through “STOP SEPSIS” order set for expedited delivery
    - If no prior resistance: broad spectrum antibiotics
        - (i.e. Vancomycin/Cefepime or Vancomycin/Zosyn vs. Vancomycin/Cefepime/Metronidazole if concerned for anaerobic infection)
    - If prior resistance: tailor therapy based on their known micro history (e.g. meropenem if known ESBL history)
- Can trial gentle isotonic fluids (judicious use if history of CHF, decompensated cirrhosis, or ESRD)

If meeting *septic shock* criteria (SIRS + hypotension)

- Call your senior for further assistance, low threshold for RRT for pressor support
- Begin infectious work-up as above
- Start fluid resuscitation with isotonic fluids (e.g. Isolyte)

Hypertension Management

- If called for BP>180/20, it is important to differentiate between hypertensive emergency and hypertensive urgency→ always evaluate the patient at bedside to assess for symptoms!
    - **Hypertensive emergency:** BP >180/120 with signs of end organ damage
        - Neuro: encephalopathy, PRES, CVA (ICH, SAH); Resp/CV: pulmonary edema, angina, MI, aortic dissection; Renal: AKI, hematuria
    - **Hypertensive urgency:** BP >180/120 without signs of end organ damage
- If evidence of *hypertensive emergency,* goal is to reduce MAP 10-20% within the first hour then no more than 25% over the first 24 hours→ low threshold to call RRT for triage and to initiate antihypertensive drip
    - If AMS or change in neurologic exam, obtain stat CTH (r/o CTH) and consider initiating nicardipine gtt (with the help of RRT)
    - If chest pain/SOB, obtain CXR, troponin, CK-MB, EKG, and consider initiating nitroglycerin gtt (with the help of RRT)
    - In general, caution with using IV pushes (labetalol, hydralazine) as these can drop BP too quickly
- If evidence of *hypertensive urgency* (no signs of end organ damage, goal is to reduce BP to <160/100 over the course of several hours then to normal range over 1-2 days
    - In general, try to avoid IV antihypertensives
    - Look at the patient's med list: if due for meds, then give meds early; if not on max dose of current medications then increase the doses of current anti-HTN regimen
    - If bradycardic, avoid beta-blockers
    - If hyperkalemic or AKI, avoid ACE/ARB
    - Note that hydralazine can cause reflex tachycardia

Hypotension Management

- Always see patient in person, analyze vital trend, assess for symptoms, check LE for warmth and perfusion, and recheck BP yourself on multiple limbs with proper cuff technique
- Common differential: sepsis, hypovolemia, bleeding, medication side effect, BP cuff malfunction, dysautonomias, anaphylaxis, poor cardiac output (i.e. cardiogenic shock), obstructive (PE, tamponade etc).
- Labs to order: CBC, BMP, ICU venous panel, infectious work-up with bcx (if sepsis suspected)
- Management:
    - If in **shock,** call your senior and RRT
    - If suspect **sepsis**, order infectious work-up, consider broad-spectrum antibiotics through "STOP SEPSIS" order set, trial gentle isotonic fluids
    - If recently received BP medications or suspect hypovolemia, trial gentle isotonic fluids or albumin (if cirrhosis or ESRD, note that 5% albumin is better for volume expansion than 25%)
    - If suspect **cardiogenic shock**, obtain above labs (i.e. perfusion markers) and avoid fluids. Call RRT for pressors/inotropic support.
    - Remember your shock differential:

Type	LE Temp	Cap refill	JVP	Causes	Clues	Treatment
Septic	Warm	Brisk <2s	Low	Infection	Leukocytosis, elevated procalcitonin, infectious symptoms	Antibiotics, source control, fluids, pressors as needed
Anaphylactic	Warm	Brisk <2s	Low	Drug exposure, IV contrast, food allergy	Known exposure, atopic hx	IM epi, benadryl, steroids
Neurogenic	Warm	Brisk <2s	Normal	Stroke, intracranial hemorrhage, spinal injury	Recent trauma, stroke risk factors, spinal mets, associated bradycardia	Rule out other causes, localize neuro insult, fluids/pressors as needed
Hypovolemia	Cold	Delayed >2s	Low	Bleed, abdominal compartment syndrome, dehydration	Recent bleed, poor urine output, Hgb drop	Volume resuscitation, blood transfusion as needed, source identification/control
Obstructive	Cold	Delayed >2s	High	PE, tamponade, tension pneumothorax	Decreased heart/breath sounds, EKG changes	Relieve obstruction (e.g. needle thoracostomy, thrombolysis, etc), vasopressors
Cardiogenic	Cold	Delayed >2s	High	Decompensated CHF, MI, arrhythmia	LE edema, EKG changes, +JVP, cold ext	Inotropic support, diuresis, cath if appropriate, avoid IVF

Tachycardia Management

- If called for tachycardia, always ask for other vital signs, obtain an EKG, and assess the patient in person
- If *sinus tachycardia*: assess for and treat underlying cause based on concurrent symptoms and vitals (common differential: sepsis, hypovolemia/bleed, pain/agitation, PE)
- If *afib/aflutter with RVR*:
  - Low threshold to call senior for further assistance
  - For rate control: If normal blood pressure, trial Lopressor 5mg IV followed by low-dose PO metoprolol tartrate (can start with 12.5mg), can try IV lopressor 5mg push every 5 minutes for up to 3 doses until you see a response
  - If no history of LV dysfunction, can alternatively try diltiazem 10mg IV push
  - If soft blood pressure, call RRT for further assistance; can likely trial amiodarone bolus followed by amiodarone gtt
  - If hemodynamically unstable, *call RRT for synchronized cardioversion*
  - Once rate controlled, if new AF/AFL consider etiology: (pan-culture, trop, TTE, CXR; TSH, replete electrolytes)
  - Goal rate for afib/aflutter with RVR is <110
- If *sustained ventricular tachycardia:*
  - Call RRT and cardiology fellow regardless of hemodynamic instability
  - If pulseless, call a code and initiate ACLS
  - If hemodynamically stable and mentating well, can try amiodarone 150mg bolus
  - If hemodynamically unstable, patient will need to be cardioverted
  - Ensure electrolytes are adequately repleted (especially Mg)
- If *SVT*:
  - If hemodynamically stable, can try vasovagal maneuvers and carotid massage (one side at a time)
    - If no response, can call RRT for adenosine
  - If hemodynamically unstable, call RRT for cardioversion
  - Goal is to revert back to normal rhythm

Chest Pain Management

- If called for chest pain, always evaluate patient in person and consider common etiologies: ACS, pneumonia, PE, pericarditis, GERD, esophageal spasm, MSK pain
- Obtain an EKG if you have even the slightest clinical suspicion for cardiac etiology
- Can reserve obtaining troponin and CK-MB for patients that you have a somewhat higher clinical suspicion for MI if EKG negative (no one will fault you for getting trops if you are unsure)
- If new EKG changes or positive cardiac markers, escalate care to your senior and call cardiology fellow for further guidance

GI Bleed Management

- Ask RN for vital signs while you go to assess patient in person, ask RN to save stool at bedside
- Take picture of stool and upload into media if possible
- If BRBPR, would think lower GI bleed vs rapid upper GI bleed
  - Common lower GIB differential: hemorrhoids, malignancy, diverticulosis, angiodysplasia
- If melena or coffee-ground emesis, would think upper GI bleed
  - Common upper GIB differential: esophageal varices (if hx of cirrhosis), PUD, gastritis, malignancy, Mallory-Weiss tear
- Labs: interval CBC, ICU venous, T+S, coags

- Management:
    - If hemodynamically unstable, call RRT and consider CTA A/P
    - Stop all anticoagulation (this includes pharmacologic DVT prophylaxis and antiplatelet therapy)
    - Make NPO
    - Start IV protonix 40mg BID
    - If hx of cirrhosis: start octreotide gtt and ceftriaxone 1g qd
    - Consult GI (helpful to have imaging in media)
    - Follow up labs and transfuse as appropriate (Hgb<8 in CAD, Hgb<7 in everyone else, plt<50 if bleeding)

Altered Mental Status

- Check last progress note and handoff to establish baseline mental status, then assess patient in person
- Look through medication list for common offenders such as opioids
- Common differential: hypercapnia, infection, stroke, ICH, seizures, medication side effect, uremia, hepatic encephalopathy, hospital-associated delirium
- Labs to consider depending on clinical scenario: ICU venous (pCO2), basic labs including BMP (BUN), infectious work-up
- If *any change in neurologic exam*, low threshold to call a stroke code for expedited CTH
    - Neurology will want to know: last known well, anticoagulation history, last plt count, last coags
- If *hypercapnic*: can trial BiPAP if not too altered, though low threshold to call RRT for intubation
- If *concern for opioid OD* (depressed RR, hypercapnic, pinpoint pupils): give narcan and call RRT
- If *concern for sepsis*, initiate infectious work-up and consider starting antibiotics

General Pain Management

- Assess in person to better understand etiology
- Start with non-opioid analgesics: Tylenol (usually best option, <2g/day in liver disease), NSAIDs (avoid in renal disease, cirrhotics, heart failure, or bleeding), lidocaine patches, diclofenac gel
- If still in moderate pain can trial PO opioid, common starting doses:
    - Hydromorphone 2mg
    - Oxycodone 2.5mg
    - Percocet (remember, contains tylenol)
    - Morphine 5mg (avoid in liver and kidney disease)
    - **Avoid tramadol as this gets metabolized into unknown quantities of morphine**
- If still in severe pain can trial IV opioid, common starting doses:
    - Hydromorphone 0.2mg
    - Morphine 2mg (avoid in liver and kidney disease)

Insomnia Management

- Elucidate underlying etiology: if in pain, then treat pain; if urinating frequently on lasix, move up lasix dose
- If need to give meds, trial ramelteon or melatonin > trazodone 50mg > hydroxyzine 25mg
- Avoid benadryl and benzodiazepine in elderly

Constipation Management

- If concurrent with abdominal pain, order a KUB to rule out obstruction or ileus
- Can start with miralax 1 packet daily + senna 2 tabs PO qhs

- If still constipated, can add lactulose 30mg PO daily or try bisacodyl suppository; then can tap water vs. docusate enema (nothing per rectum to neutropenic pts

OXYGEN/VENTILATORY SUPPORT:

Hypoxemia

- Establish goal SpO2 (usually >92%, aim for 88-92% if COPD) and assess patient
- Differentials to consider: monitor error (poor waveform), aspiration, PE, hypervolemia/CHF, developing pneumonia, COPD/asthma exacerbation, OSA/OHS
- Assessment: physical exam (lung sounds, LE edema, JVD), ABG, CXR
- General O2 escalation: nasal cannula (up to 6L)-> NRB (up to 15L)->HFNC (max 60L/100%, good for pure hypoxia without hypercapnia)->BiPAP (good for hypercapnia and pulmonary edema) → intubation
- Call RRT if rapidly escalating O2 requirements, if escalating past nasal cannula, or notably increased work of breathing
- If evidence of *hypervolemia* on exam and imaging, can trial diuresis with lasix
- If evidence of *pneumonia*, would initiate infectious work-up and consider antibiotics
- If history of *COPD*, trial BiPAP before considering intubation
- **Red flags** (call RRT stat): GCS<8, pooling airway secretions, RR>35, large-volume hemoptysis

Hypercapnea

- To understand if acute or chronic, look at patient's baseline pCO2 as well as patient's pH and HCO3→if normal pH with elevated bicarb then hypercapnea is likely chronic
- If worsening hypercapnea, trial BiPAP if no contraindications (*s*evere AMS, vomiting, copious secretions, inability to protect airway, HD instability, severe UGIB, poor mask fit)--> trend pCO2 on serial VBGs→ if no improvement then patient may require intubation

Indications to Intubate: Ask yourself 4 questions:

1) Failure of airway maintenance or protection? AMS, inability to clear secretions
2) Failure of oxygenation? Remains hypoxic after brief trial of bipap
3) Failure of ventilation? pCO2 did not improve with bipap
4) Is there an anticipated need for intubation? Increased WOB

ANTIBIOTICS/MICROBIOLOGY TIPS:

- Always try to get cultures prior to antibiotic administration > blood culture and urine culture. For blood culture, need 2 sets (4 bottles) from 2 different sites
- If BCx positive, order daily cultures until cleared x3-5 days
- Pan-culture means: order blood cultures (x2), urine culture, respiratory culture (CXR also recommended)
- We generally do not start abx for a **single** fever in non-immunocompromised patient with otherwise stable vital signs
- If patient becomes septic on floors, order first dose of abx through 'stop sepsis' order set; will allow pt to get abx sooner
- When deciding which broad spectrum abx to order, check 'micro' section of epic to see what organisms pt has grown before and what previous organisms have been resistant to
- Specific broad spectrum abx that require ID approval: (cefepime, zosyn, all carbepenems, aztreonam, linezolid, daptomycin, caspofungin, etc).; IV vancomycin does NOT require ID approval. To get ID approval, page p9407. This number will also be in the Epic order for antibiotics that require approval
- When calling ID approval or ID, always have pts weight, Cr and calculated Cr clearance ready
- Best website for dosing IV vanc: http://www.cumc.columbia.edu/dept/id/downloads/Vancomycin_5-26-05.pdf (don't forget to order

vanc troughs or levels!)
- Always keep track of day of abx -narrow abx as soon as culture results return

BOLUSING FLUIDS:

- The main reasons you would bolus is for hypotension and tachycardia
  - Be very cautious bolusing patients predisposed to volume overload (ESRD, cirrhosis, CHF)
  - Patients with none of the above comorbidities can usually tolerate 1L IVF
  - You should inform your resident if a patient requires >2L IVF
- Generally start with isolyte or plasmalyte (isotonic), note that NS can cause metabolic acidosis in high quantities
- Avoid plasmalyte in pts with hyperkalemia or any condition that can predispose to high K (ie renal disease).
- Can bolus bottle of 5% albumin if pt with cirrhosis or ESRD

Electrolyte Repletion and Lab Management

Potassium:

- Goal >4 in cardiac patients and >3.5 in everyone else -always replete Mag before repleting K
- Always try to replete PO if possible (Kdur- pills vs. powder, powder usually more tolerable)
- If repleting IV, can do 10mEq/hr if peripheral IV or 20mEq/hr if pt has central line
- Every 10 mEq of K given is expected to raise the K by 0.1 (ie. if you give 40mEq of K to a pt with K of 3.4, expect the repeat K to be 3.8)
- **Check with your resident first before repleting K in a patient with ESRD or AKI/CKD**

Magnesium:

- Goal >2 in cardiac patients and >1.5 in everyone else
- Can give magnesium sulfate 1g if mag <1.5; if <1.2 can give 2g of Mag sulfate

Phosphorus:

- *Oral:* Neutraphos; IV: sodium phosphate or potassium phosphate (do not give Kphos if K is high)
- *IV:* -2.1-2.4 give 15mmol of phos IV -1.5-2.0 give either PO neutraphos 0.25 or IV 0.25mmol phos -<1.5 give 0.5 mmol phos IV (would have to give in multiple runs)

Calcium:

- Calcium chloride- 13.6 mEq of elemental Ca; DO NOT give peripherally, may cause thrombophlebitis - calcium gluconate
- If iCa <1.0. Give 1g Calcium gluconate/ hr Lab abnormalities:

Hyperkalemia:

- Check to see if blood is hemolyzed, if so then order stat plasma K. Also make sure blood wasn't drawn off IV running K; if so then drawn from other arm
- If ESRD, talk to your resident→may need to call renal for urgent dialysis; even if patient is going to get urgent dialysis, you should still medically manage their hyperkalemia until dialysis happens
- General management:
  - *K 5-5.5* > recheck later that day to ensure not uptrending
  - *K 5.5-6.0* > lokelma 10mg, recheck (there is a hyperkalemia order set)
  - *K >6.0* > EKG (if peaked T waves or other evidence of cardiac destabilization, give STAT calcium gluconate 1g); medically manage with lokelma 10mg, insulin 10u (5u if renal dysfunction) + D50

Elevated INR (from oral AC):

- *If not bleeding:* do NOT need to transfuse FFP
- If above therapeutic range but <5: hold for one night
- If >5 but <9: hold next 1-2 doses
- If >9: hold next few doses until normalizes, give vitamin K 5mg orally
- *If bleeding*→→tell your resident; order FFP (2u to start) if INR >2 bleeding

Transfusion goals: (if NOT actively bleeding)

- *Hemoglobin:* Hgb>7 in most patients; if CAD then transfuse to Hgb>8
- *Platelets:* Plts >10; >20 (if febrile); >50 if bleeding

Lab Tube Colors:

- CMP/BMP/LFTs: gold
- CBC: purple

- Coags: blue
- Troponin: green
- Type and screen: pink

Tip! If a patient has had a CBC drawn, you can request a peripheral smear through typing in “heme/onc slide request” and entering a tube station (211 is 10C), selecting “add on” and “lab collect”

Tip! If any hepatic labs or amylase/lipase were drawn by the ED, then a gold top tube was collected→can add on a BMP/other electrolytes to this by calling the lab

Tip! Mag and phos NOT included in BMP or CMP

Tip! An ICU venous panel is just as good at evaluating acid/base status and lactate. The only reason to order an arterial panel over a venous panel are: (1) evaluating hypoxemia (2) in calculating an A-a gradient to decide if PCP pt needs steroids, (3) severe hypercapnia, (4) mechanically ventilated pts (questionable); for hypoxia, SaO2 just as good as PaO2

Tip! Lactate is a marker of severe sepsis; only order if fulfills sepsis criteria; do not order for basic fever

Tip! If you forget to order an AM lab, but ordered another lab with the same tube color, you can add on the lab. To do so→→re-order the lab as ‘Add-on”

Tip! Type and screen needs to be renewed q72hrs so if you have someone who may require transfusions order schedule t/s every T/Th/Sat for AM labs

COMMON PROCEDURES/SUPPLIES

Diagnostic paracentesis:
Before starting: [ ] ultrasound, [ ] consent from patientworks

Setup: [ ] chucks, [ ] sterile drapes (x3), [ ] bucket for supplies [ ] paracentesis kit

Prep: [ ] 3 chloropreps, [ ] sterile gloves, [ ] 4x4 gauze sponges

Procedure:
[ ] 1% lidocaine (without epi) [ ] 20G (grey) needle for drawing up lidocaine
[ ] 22G (green) needle for performing dx tap, 30-60cc syringe for drawing up ascitic fluid
[ ] Additional 22G syringe for transferring fluid into tubes
[ ] 25G needed for injecting lidocaine
[ ] 5-10cc syringe for lidocaine
[ ] Tegaderm

Tubing:
[ ] 2 purple top tubes (for cell count, gram stain/culture)
[ ] 4 yellow (not gold) tubs for LDH, protein, albumin, fluid cultures
[ ] specimen bags to send tubes (tube to station 91)

Special for LVP (in addition to everything required for dx tap):
[ ] order albumin (25%, not 5%; order 1 bottle for every 2L you intend on removing)
[ ] 1-2 large orange 4L bottles
[ ] scissors for IV tubing,
[ ] IV tubing- cut with one screw top end remaining
[ ] paper tape

Ultrasound guided IV
[ ] ultrasound
[ ] IV started kit
[ ] 20G (pink IV) x 2
[ ] saline flushes x 2
[ ] alcohol swabs