

B-POD GUIDE 2020-2021



 University of
CINCINNATI Emergency
Medicine

Since 1970 - Leadership - Excellence - Opportunity

Table of Contents

About the ED

Residency Contacts	4
Online Resources	5
Survival Tips	6
Charting / Epic	7
Consultants	8
Admission/Transfer	11
PCP Follow-up	15
Medical Holds	17

Cardiology

Syncope	20
Hypertension	20
Chest Pain	21

HEENT

Epistaxis	23
Strep Pharyngitis	24
Eval of Red Eye	24
Dental Pain	25
Facial Nerve Blocks	26

GI

Abdominal Pain	27
GI Bleed	28

Neurology

Stroke	30
NIH Stroke Scale	32
Vertigo	33
Migraine	34
Seizures	34

OB/GYN

Ectopic Pregnancy	35
Uterine Bleeding	37
Hyperemesis	37
PID	38
STIs	39
Miscarriage	39

Orthopedics

Splints	40
Decision Rules	41

Orthopedics

Low Back Pain	42
Distal Nerve Blocks	43

Wound Repair

Suture Selection	44
Topical Anesthetics	45
Suture Types	45

Pulmonary

Pneumonia	46
Asthma/COPD	48
Mechanical Ventilation	50
PE/DVT	51

Trauma

GCS	58
TBI / Head CT Rules	59
CSpine CT Rules	60
STAT & Alert Criterion	61

Other

Sickle Cell Disease	62
Sepsis	65
Pressors	67
Overdose/Tox	68
DKA/HHS	70
Acid/Base	72
Electrolyte Disturbance	74
	79

Ultrasound/USGRA

Medication Dosing

Common Doses	84
Opiate Alternatives	85

Antibiotics

	86
--	----

Droperidol

	88
--	----

Medication-Assisted Treatment for Opioid Disorder (MAT)

Call List	92
-----------	----



Emergency Medicine

Residency Leadership Team

Dr. Erin McDonough
Dr. Jeff Hill
Dr. Ryan LaFollette
Dr. Robbie Paulsen
Dr. Spenser Lang
Dr. Jessica Baez

mcdonoen@ucmail.uc.edu
hiljm@ucmail.uc.edu
lafollrn@ucmail.uc.edu
paulsere@ucmail.uc.edu
langsr@ucmail.uc.edu
merriajr@ucmail.uc.edu

Chief Residents

Dr. Hannah Hughes
Dr. Jessica Koehler
Dr. James Li
Dr. Sim Mand

ucemchiefs@ucmail.uc.edu

Program Coordinators

Jim Griffis
Melissa Murphy
Kim Regan

jim.griffis@uc.edu
melissa.murphy@uc.edu
kim.regan@uc.edu

B-Pod Guide Editors

Dr. Sim Mand
Dr. Ryan LaFollette

Dr. Natalie Kreitzer is the creator of The B-Pod Guide and continues to champion, support, and edit this publication.

Thank you to Drs. Stettler, McDonough, Ronan-Bentle, Hill, LaFollette, and Loftus for your help and support with this book.

Thank you to Jim Griffis for editing and facilitating production of this book.

Online Resources

- tamingtheSRU.com - UCEM Blog, Procedural Video, UCMC CEC Protocols & Common Forms
- mrc.pemcincinnati.com - CCHMC EBM Clinical Pathways
- qgenda.com - Call Schedules & Text Paging

Mobile Apps

1 Minute Ultrasound
UpToDate
Epocrates
MicroMedex
Read by QXMD
Calculate by QXMD
WikEM
Canopy Speak
EMRA Antibiotic Guide
EMRA PressorDex
EMRA Peds Airway
EMRA MobilEM
EMRA Peds Meds
Good Rx
PediSafe
PediSTAT
10 Second EM
Haiku
ECG Stampede
MedHub

FOAMed/Blogs

aliem.com
emergencymedicinecases.com
emcrit.org
emlyceum.com
lifeinthefastlane.com
rebelem.com
thennt.com
coreem.net
umem.org/educational_pearls/

Podcasts

EM Basic
EMRAP
EMCrit
PEM Currents
Ultrasound Podcast

Disclaimer

The information provided herein is meant to serve as a general guide for medical care and does not constitute the recommendations nor the official endorsement of the department of emergency medicine at UC. Individual evaluation and treatment steps differ between patients and may vary significantly relative to recommendations presented here.

B-Pod Tips

- Communication is key. Keep your R4 (AND NURSES) in the loop as much as possible.
- Make every attempt at meeting the squads by the room in order to get verbal report when they drop off patients. This will help reduce redundancy, enable you to ask any questions to the paramedics and goes a long way in our continued working relationship with EMS providers.
- In general, seeing and stabilizing sick/unstable patients come first, then 'dispo-ing' patients (Admits vs Discharges), then working up and evaluating new/stable patients.
- Chart as you go -- i.e. HPI and Exam sections immediately after you see the patient; ED course/MDM when you disposition. Building good habits early on will greatly benefit you in later years when your patient volume increases.
- Get burdensome/rate limiting diagnostic steps and procedures out of the way as early/efficiently as possible -- i.e. pelvics, rec-tals, ultrasounds, LPs, obtaining urine.
- Managing patient expectations is crucial. Try to give them an idea of your plan and the steps to be completed before you leave the room.

Epic TIPS

DOCUMENTING

• History of Present Illness (HPI)

Level 1-3: 1 Req, Level 4-5: 4 Req

1. Location (where on the body)
2. Duration (when did patient notice the symptoms)
3. Quality (sharp, stabbing)
4. Severity (4/10, severe, agonizing)
5. Context (what was patient doing when symptoms began)
6. Timing (after meals, before bed, every 10 mins)
7. Modifying factors (feels better with ice, better with rest, Motrin did not help)
8. Associated signs and symptoms

• Physical Exam (PE)

Level 1: 1, Level 2-3: 2-4, Level 4: 5-7, Level 5: 8+

- | | |
|--------------------------------------|---------------------------------------|
| 1. Head, including face | 1. Constitutional |
| 2. Neck | 2. Eyes |
| 3. Chest, including breast & axillae | 3. Ears, nose, mouth & throat |
| 4. Abdomen | 4. Cardiovascular |
| 5. Genitalia, groin, buttocks | 5. Respiratory |
| 6. Back, including spine | 6. Gastrointestinal |
| 7. Each extremity | 7. Genitourinary |
| | 8. Musculoskeletal |
| | 9. Skin |
| | 10. Neurological |
| | 11. Psychiatric |
| | 12. Hematologic/lymphatic/immunologic |

• Medical Decision Making (MDM)

This is not as straight forward. MDM is determined by your differential diagnosis/management options; amount and complexity of data; risk of complications, morbidity and mortality. Length does not necessarily equate to thoroughness.

GENERAL SMARTPHRASES

Insert smartblocks (click through menus) or pre-made text into your note templates, some examples:

`.edphysicalexambyage`
Smartblock physical exam

`.procdoc`
Smartblock for common procedures

`t+90`
Shortcut to order a test 90 minutes from now

`.futureappointments`
Inserts a list of patient appointments

`.edccommclinic`
`.edccidental`
Inserts a list of community medical or dental clinics

`.edhealthliteracy`
Inserts a template for discharge instructions

`.edhomelessmen`
`.edhomelesswomen`
Inserts a list of shelters

`.edtransportation`
Inserts transport help

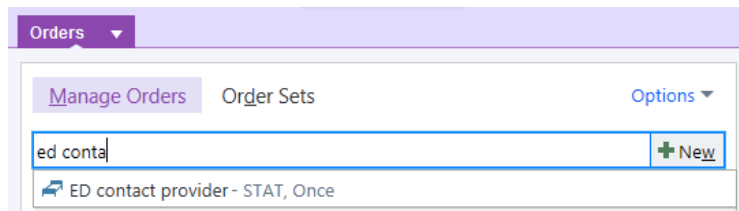
`.bleach`
Inserts bleach bath instructions

`.edcneedleexchange`
Inserts needle exchange location lists for known/suspected IVDU

`.dcincidentalfinding`
Inserts a template for you to insert incidental findings and recommended follow up time frame

Contacting a Consultant

Once the decision has been made to consult a specialty service, place an “ED Contact Provider” order in the patient’s Epic Order Manager, as shown below



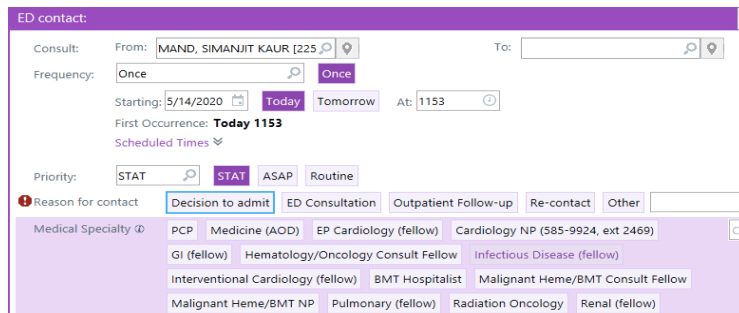
Orders ▾

Manage Orders Order Sets Options ▾

ed conta + New

ED contact provider - STAT, Once

Fill in the required features of the order, select your call back number, and sign the order. The HUCs will call the consultant and forward the call to the selected number once contacted.



ED contact:

Consult: From: MAND, SIMANJIT KAUR [225] To:

Frequency: Once

Starting: 5/14/2020 Today Tomorrow At: 1153

First Occurrence: **Today 1153**
Scheduled Times

Priority: STAT ASAP Routine

Reason for contact: Decision to admit ED Consultation Outpatient Follow-up Re-contact Other

Medical Specialty: PCP Medicine (AOD) EP Cardiology (fellow) Cardiology NP (585-9924, ext 2469)
GI (fellow) Hematology/Oncology Consult Fellow Infectious Disease (fellow)
Interventional Cardiology (fellow) BMT Hospitalist Malignant Heme/BMT Consult Fellow
Malignant Heme/BMT NP Pulmonary (fellow) Radiation Oncology Renal (fellow)



Call has not
been made



Call is placed



Call completed

HUCs can also help get you records from OSH, just ask them nicely!

Talking to Consultants

Identify yourself and your reason for calling (ie “patient for you to see” or “patient needing follow-up”), name of the patient, MRN and location in the ED then briefly present needed info and specific question you need answered.

Speciality	Specific Details
Cardiology	Previous h/o CAD, previous interventions, most recent cath results, most recent ECHO results and EKG findings today
Gyn/OB	Gs & Ps (TPAL), LMP, Upreg, Rh status, pelvic findings
Infectious Disease	HIV: most recent CD4 count, med regimen, AIDS defining illness or not?
Oncology	Type/stage of disease, primary oncologist, date of most recent chemotherapy treatment
Ophthalmology	Visual acuity, pupil exam, IOP (if applies), contacts or not
NSGY	Anticoagulants (including ASA), INR, GCS, mechanism
Neurology	Stroke: last known normal, anticoagulants, INR, NIH stroke scale Epilepsy: primary epileptologist, home antiepileptic meds, type of seizure, length of seizure, benzos given?
Orthopedics	Injury, mechanism, X-rays of injury and the joint above and below the injury, neurovascular status, open or closed
Acute Care Surgery	Abdominal exam findings, imaging performed, WBC count, prior surgeries, anticoagulants

Surgical Consultant Logistics

Surgical Specialty

Acute Care Altemeier (colorectal) Breast Heuer Reid (surg onc) Burn
 Cardiac Surgery ENT Neurosurgery OMFS Ophthalmology Orthopedics Spine
 Plastic Surgery Face Hand Podiatry Thoracic Surgery Trauma non-acute Urology
 Vascular Surgery

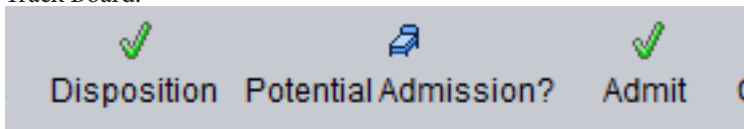
Gynecologic Services

Gynecology Gynecology-r/o ectopic Gynecology-oncology Obstetrics

Specialty	Consult this team for:
Acute Care Surgery (Heuer)	ED consultation of new surgical emergencies, established ACS pts
Surgical Onc (Reid)	Established pts of Dr. Ahmad, Dr. Sussman & other SurgOnc attendings
Colorectal (Altemeier)	Established pts of Colorectal attendings
Burns	New burns, established pts, SJS
Spine [Ortho/Nsrgy]	Spinal fx, spinal masses, discitis, etc
Hand [Ortho/Plastics]	Bony injury distal to and involving the wrist, Soft tissue injury distal to the elbow
Face [ENT/Plastics/OMFS]	Bony & soft tissue injury to the face
Gynecology	Rule out ectopic, torsion, TOA
Thoracic	Spontaneous PTX, esophageal rupture, established pts
Cardiac Surgery	Type A dissections, acute valvular emergencies
ENT	Temporal bone fx, soft tissue neck infections, airway masses/obstruction, established pt
Vascular	Arterial thrombus, ischemic limb, type B dissections, AAA, established pt
Plastics	Complicated soft tissue injuries or infections
Oromaxillofacial (OMFS)	Dental trauma, odontogenic infections
Trauma	See pg. 58
Transplant	All post-operative transplant complications <1 yr (transplant medicine in 'other' if > 1 yr)

Admitting a Patient

Potential Admits: When you've identified a potential admission, it is helpful if you click the potential admission button found on the Track Board.



Epic Admission Logistics:

- 1) Click the 'Dispo' tab in the patients chart:
- 2) Select "Disposition" option
- 3) 'Impression' requires a diagnosis
- 4) 'Bed Request' order needs to be placed and signed (see next page)

The screenshot shows the Epic patient chart interface with the following sections:

- Workup:** A purple sidebar icon with a document and ECG line.
- My Note:** A purple sidebar icon with a notepad and pencil.
- Manage Order...:** A purple sidebar icon with a clipboard and pencil.
- Dispo:** A purple sidebar icon with a door and arrow, labeled with a red '1'.
- Disposition:** A purple header with a green checkmark and a red '2'. Below it are buttons for 'Admit', 'Discharge', 'ED Observation', 'Send to OR', 'Transfer to Another Facility', and 'Transfer to PES'.
- Impressions:** A purple header with a green checkmark and a blue 'Add from' link. Below it is a text input field 'Add a new impression' with a '+ Add' button.
- Suggestions:** A purple header with a red '3' and a dropdown arrow. Below it are three items: '+ Abdominal pain', '+ UTI (urinary tract infection),', and '+ Constipation'.
- Bed Request:** A purple header with a blue 'Release Held Orders' link and a '+ New Order' link. Below it are six 'Order' buttons with bed icons: 'ED contact provider - UCMC', 'ED contact provider - WCH' (with a red '4'), 'Bed Request - ICU', 'Bed Request - step down', 'Bed Request - telemetry', and 'Bed Request - med/surg'.

Bed Request - med/surg ✔ Accept ✖ Cancel

Receiving Department: Dx: Stay Length:

Service:

Level of Care:

Hospital Area:

Admitting Provider:

Contact number for Provider making bed request:

Bed Request Comments:

Does the patient have symptoms of Covid-19 (eg. Fever, dyspnea, cough, loss of smell)?
 Yes No

Is the patient being admitted at UCMC to any medicine team (hospitalist, renal, GI, etc.) at a med/surg OR telemetry level of care?
 Yes No

Comments: [+ Add Comments \(F6\)](#)

! Next Required [Link Order](#) ✔ Accept ✖ Cancel

1) If the patient is to be admitted to a medicine floor, the “yes” button will open up a list of criteria to assess whether the patient will be appropriate to transport to Ridgeway for admission.

Is the patient being admitted at UCMC to any medicine team (hospitalist, renal, GI, etc.) at a med/surg OR telemetry level of care?
 Yes No

Does the patient have a GI bleed?
 Yes No

Does the patient have asthma exacerbation within first 24 hours of presentation?
 Yes No

Does the patient have a chest tube?
 Yes No

Does the patient have a sickle cell crisis (SCC) with a new oxygen requirement?
 Yes No

Does the patient have a new intracranial hemorrhage?
 Yes No

Does the patient have a critical airway?
 Yes No

Does the patient require dialysis (hemodialysis or peritoneal)?
 Yes No

! Next Required [Link Order](#) ✔ Accept ✖ Cancel

2) If any of these questions are answered with a “no,” this will provide a notification to the BedBoard team that the patient is an inappropriate Ridgeway admission.

3) Please ask your R4 if you are unsure if the patient meets Ridgeway criteria.

Bed Request for a Medicine** Admission:

- A) Service: Team you are admitting to
- B) Decide on level of care (ICU, step-down, med/surg floor)
- C) Can leave attending blank (bed board will assign)
- D) Place your call back number here, the admitting team will call for report via Bed Board
- E) Dx will autopopulate from “Impressions”

**Also applies to admissions to Cardiology, Renal, and GI

To Admit to Heme/Onc (solid tumor, sickle cell, hemophilia, VWD)

- ED Contact Order: Heme/Onc Fellow to approve admission to their service. Then same bed request process as Medicine, with Heme/Onc as your admitting service.

To Admit to BMT/Malignant Heme (leukemia, lymphoma, MM)

- ED Consult Order to consult the service
 - M-F 8a-5p: BMT NP
 - Weekend 8a-5p: BMT Fellow
 - Everyday 5p-8p: Oncology Fellow
 - Everyday 8p-8a: BMT Hospitalist
- After they have spoken with you and determined they will admit the patient you can admit as previously described with ‘Bed Request’ order

To Admit to Surgical Services & ICUs

- ED Consult/Contact Order to consult the service
- After they have evaluated the patient and want to admit them, you MUST get the name of the accepting attending.
 - These residents are busy and often forget to let you know the name, so ask them while on the phone or when they are in the ED.
- ICU services will often accept after hearing the story from you and not necessarily come to ED to evaluate patient
- Now you can admit as previously described with ‘Bed Request’ order, after listing the attending
- Involve the Psych SW ASAP to expedite this process.

Transfer to PES (Ridgeway)

- If patient has a psych hold already signed by police or EMS, then they are required to be transferred to PES or be cleared by a psychiatrist (by the video robot). Let the Psych SW know about them upon arrival so they can determine which option is best.
- If no hold has been signed, discuss signing a hold on the patient with the Psych Social Worker and your R4. If they are a flight risk and you know they are suicidal or homicidal, sign it early.
- If the psych social worker determines they should be transferred to PES, they will help arrange for transport.
- PES cannot accept the patient until there has been ‘Doc-to-Doc’ sign-out 584-PSYC. Make sure to get the last name of the Psych resident or attending to whom you give ‘Doc-to-Doc’ report, then tell your nurse to do a ‘Nurse-to-Nurse’, then let Psych SW know the patient is ready for transport.
- Complete the ‘EMTALA Transfer Documentation’ form within the ‘Dispo’ tab after selecting “Transfer to PES” for the ‘Disposition.’
- Provides 8-23 hour observation by ED attending and APP coverage

AMA Criteria

If a patient wishes to sign-out Against Medical Advice (AMA), both your attending and R4 should know about this and be involved in the decision making process. Make sure to evaluate for, inform the patient about and then document the following:

1. Does this patient have Capacity? Do they have a sound mind? Can they articulate a plan back to you? Can they explain what might happen without treatment and are they consistent in their thought process?
2. Explain what the proposed plan was and what alternatives you

can offer.

3. Address why the patient wants to leave, attempt to fix any reversible processes-- pain, misconception of plan or diagnosis, etc.
4. Explain all the risks of leaving AMA, more than just “death.” Be specific!
5. Attempt to provide the best and safest treatment plan the patient will allow. Give them follow-up and whatever prescriptions are needed to treat the disease process.
6. Give the patient signs/symptoms of worsening disease and reasons they should return. Tell them they can return to the hospital at any time.
7. DOCUMENT this discussion.

Non-urgent outpatient follow-up/PCP referrals

- 1) During Business Hours (9am-5pm M-F):
 - Call Michelle Long or Chelsea Hamilton.
 - They can be reached at 584-7758.
 - They can get non-urgent PCP follow-up or help non-insured patients establish PCPs.
- 2) After Hours:
 - After selecting ‘discharge’ in ‘Dispo’ tab, select ‘Community Health Work’ referral
 - Send inbox message with pt’s diagnosis, when they should be seen. Verify numbers with the patient. The social workers will set your patient up with a PMD as an outpatient and call them to inform them of their appointment.

The screenshot shows a software interface for patient disposition. At the top, there is a 'Disposition' header with a checkmark icon. Below this, there are several buttons: 'Admit', 'Discharge' (which is highlighted in purple), 'ED Observation', 'Send to OR', and 'Transfer to Another Facility'. Below these buttons is a search bar containing the text 'Discharge'. At the bottom of the interface, there is a green button labeled 'Comm/Com Health Work' with a right-pointing arrow.

ED Observation (ED Obs) / Clinical Decision Unit (CDU)

- To admit to CDU, discuss patient's care with your R4 first as to whether the patient is appropriate for CDU (protocols on www.tamingthesru.com)
 - Asthma/COPD
 - Chest Pain
 - Cellulitis
 - Select Trauma Patients or TBIs
 - TIAs
 - Hyperemesis Gravidarium
 - Select Syncope Patients
 - General/Other
- Discuss the patient with your POD attending to see if they approve the admission to an observation protocol, then call the CDU provider at 688-5372 to give them report
- In Epic, place patient in "ED Observation" under 'Dispo' tab

Specialty Outpatient Follow-up

- Subspecialty outpatient appointments are best facilitated by placing a 'Referral Order' within the Discharge Navigator. The scheduling coordinators from the specialty clinics will contact the patient to schedule this appointment.
- You may also put the clinic contact information in the 'Follow-Up' section in the Discharge Navigator.

Additional details/exceptions below:

Specialty	Urgent Follow-up (<1week)	Non-urgent Follow-up
ENT	Resident on call	Epic Referral
GI	513-475-7505, then press 1 for scheduling and/or press 2 for nursing. Can also EPIC message Debra Snell: 746-0619 or Donna Keaton: 746-5048 for urgent follow-up	Epic Referral (GI fellows do not expedite)
OMFS	OMFS resident on call (tooth removal)	Refer to dentist, let them refer to OMFS
Ophthalmology	Resident on call	Resident on call
Plastics	Resident on call	513-475-8881
Orthopedics	Resident on call	513-475-8690

Medical Hold

Medical Hold: Not permitting patient to leave hospital/ED due to underlying medical condition.

- Involves a Capacity determination: Patient needs immediate medical treatment AND patient does NOT have capacity to understand risks/benefits/outcomes of leaving AMA.
- Common examples include AMS or EtOH intoxication.

**Medical Hold is NOT the same thing as a Psychiatric hold

**Public Safety Officers are not permitted to forcibly restrain medical hold patients, unlike patients on Psych hold

**When the patient could potentially qualify for both a Medical and Psychiatric hold, use the Medical hold FIRST as this allows more time for clearance and evaluation for the inpatient team.

3 Basic Steps

1. Determine patient needs to stay under a medical hold

2. Order the Medical Hold in Epic

a. “Order Sets” → “Medical Hold”

b. Order entry will prompt a Best Practice Advisory (BPA) reminding you to add “Needs a medical hold” into Problem List → Click Accept

☰ Orders from Order Sets

Involuntary Medical Hold Orders

Medical hold

ASAP, Until discontinued, starting today at 1158, until Sun 5/17, for 3 days

Contact next of kin

P ASAP, As needed, starting today at 1157, Until Specified

c. Document the need for treatment and the lack of capacity within a separate, blank reassessment note. Type “.medhold” and fill out the note, taking care to answer all prompts.

3. Discontinuing a Medical Hold

- a. Discontinue the order
- b. Discontinue the Medical Hold Problem from the Problem List
- c. Document new note with change in capacity (“.medcap” or add addendum to prior note)

*If you forget to discontinue these prior to discharge, a BPA will fire AT THE TOP of the Discharge navigator to make it easier.

Step-Down Criteria

Diagnosis	Requirements
Acetaminophen Toxicity	With transaminitis receiving N-acetylcysteine; no encephalopathy
Acute Delirium	Requiring frequent pharmacologic or nursing intervention
Acute Thyrotoxicosis	W/o thyroid storm but requiring continuous (not titrating) CCB or BB infusion for rate control
DKA	Uncomplicated & improving on insulin gtt (q2h FS)
Ethanol Withdrawal	Requiring continuous non-titrated benzo infusion
Hemodynamic Instability	Regardless of etiology, if patient has persistently abnormal vital signs, consider if they will be better served on a stepdown team rather than floor service
Hyponatremia	>115 + mental status changes/seizure but otherwise stable <115 without mental status change
GI bleed	Active but hemodynamically stable with witnessed melena or BRBPR; Reported bleed with HgB<9, ESLD, INR >1.7, SBP >100, HR <110
Ophthalmologic	Rx >3 drops per hour (q1h to ICU)
Overdose/Tox	With mental status changes but stable resp status
Pulmonary	New NIPPV, significant hypoxia (FiO ₂ >50%), >q4h resp treatments

- Step-down beds tend to be the most difficult to obtain quickly, so be sure you discuss the decision to send a patient to step-down vs floor vs ICU with your R4.
- Frequent reassessment of their appropriateness for step-down is necessary given how much time they can spend in the ED before getting a bed.

Syncope

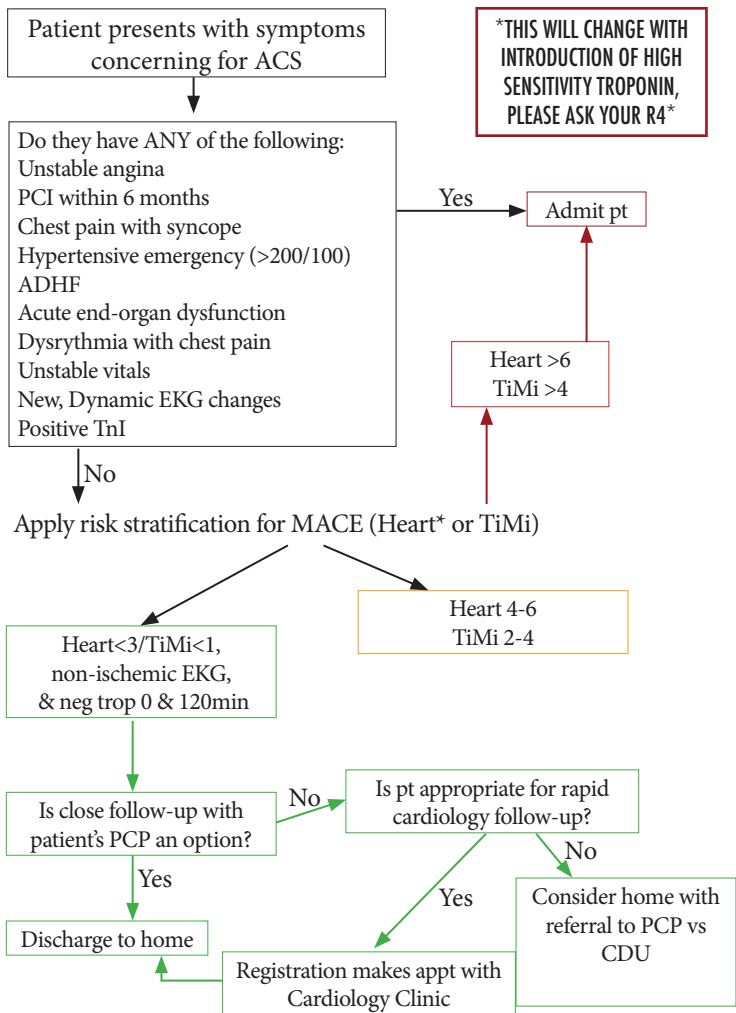
- No defined “workup” for syncope. Discuss with your R4 and use clinical judgment. Typically get an EKG, fingerstick glucose and pregnancy test. If admitted will need orthostatic vital signs so you can go ahead and get these to help out the medicine team.
- Important to differentiate from seizure. Bystander history may be helpful.
- San Francisco Syncope Rule (CHESS mnemonic) and Canadian Syncope Risk Score are methods to help predict potential for adverse events at 30 days.

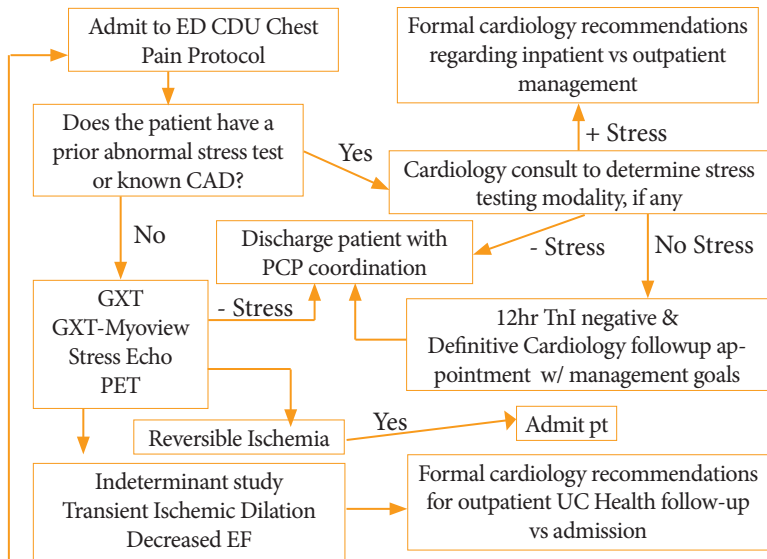
Hypertension

- Isolated asymptomatic hypertension does not typically require treatment
 - Consider giving home oral antihypertensives
- History and exam for neurologic findings, chest pain, pulmonary edema as evidence of end-organ damage
- Consider the following: Renal panel, Troponin, BNP, EKG, UA, Ureg, CXR, Head CT
- Hypertensive Emergency is treated differently based on form of end organ damage. See tamingthesru.com for treatment.

Characteristics	HTN Emergency	HTN Urgency
Significant BP elevation	Yes	Yes
BP >180/120	Yes	No
End Organ Damage	Yes	No
IV Meds	Yes	No
Associated Conditions	ACS, Dissection, optic swelling, encephalopathy, pulmonary edema	Nose Bleeds

Chest Pain





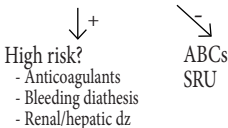
***HEART Score: 0-3 is low risk for MACE at 6wks**

<u>H</u> istory:	Highly suspicious	2
	Moderately suspicious	1
	Slightly suspicious	0
<u>E</u> KG:	Significant ST depression	2
	Nonspecific repolarization disturbance	1
	Normal	0
<u>A</u> ge:	>65	2
	45-65	1
	<45	0
<u>R</u> isk Factors: (DM, HTN, Current Smoker, HLD, Obesity, Family History)	>3 risk factors or h/o atherosclerotic disease	2
	1 or 2 risk factors	1
	No risk factors	0
<u>T</u> roponin:	>2x upper limit of normal	2
	1x upper limit of normal	1
	Negative	0

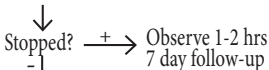
Epistaxis

Initial Evaluation

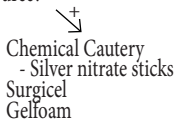
Stable vitals?



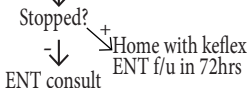
1. Have pt blow nose vigorously
2.2 Afrin sprays/nare
3. Alar pressure x 15 minutes



Visualize Source?



Consider:
Lido+epi
TXA 5% solution
Nasal Packing (See Adjuncts)



Don't Miss

Septal Hematoma
Symptomatic anemia

Adjuncts

ANTERIOR BLEED

1. Nasal tampon



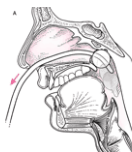
2. Rapid Rhino



3. Rhino Rocket



POSTERIOR BLEED



Foley Catheter



Ultra-stat

Admission Indications

- Unstable
- Bilateral Anterior Packing
- Posterior Packing

Strep Pharyngitis

Centor Criteria

- History of fever +1 pt
- Tonsillar exudates +1 pt
- Tender anterior cervical adenopathy +1 pt
- Absence of cough +1 pt

Modified Centor Criteria (above plus age)

- Age <15 +1 pt
- Age >44 -1 pt

Management

- <2 points: No antibiotic or throat culture necessary (Risk of infection <10%)
- 2 points: optional Rapid strep test in ED, treat if positive
- >2 points: Rapid strep + culture, treat if positive

Evaluation of the Red Eye

- 1) Unilateral or Bilateral?
- 2) Visual acuity
- 3) Pupillary response
- 4) Extraocular movements
- 5) Ophthalmoscopic exam
- 6) Evert the eyelid looking for foreign bodies
- 7) Visual fields
- 8) Tonopen measurements if indicated
- 9) Tetracaine/Fluorescein exam to eval for corneal abrasion
- 10) Slit lamp exam; looking for cell and flare, foreign bodies, corneal abrasions, or hyphema

Dental Pain

- Consider dental block (dental injector in the dental cart in IPod + 1.8 ml bupivacaine cartridge)
- Tap on tooth to confirm that pain is actually dental and not referred pain.
- Examine for gingival abscess, lymphadenopathy, buccal, periorbital and submandibular cellulitis/abscess.
- Do thorough exam to make sure no evidence of Ludwig's angina, airway compromise or inability to tolerate secretions.
- Antibiotics: Penicillin VK 500 mg PO QID for 10 days or Clindamycin 300-450 mg PO QID for 10 days
- If patient requires an immediate dental extraction, has buccal cellulitis, facial abscess associated with dental infection or other concerning features, contact OMFS resident on call for rapid follow-up or consider CDU admission.

Dental Box

- Located in I pod and contains items needed for most ENT/Dental procedures.
- List of contents is attached to the cart.

Specific Items:

1. **Calcium Hydroxide Paste:** use for covering exposed dentin/pulp in Ellis II/III dental fractures.
2. **Temrex (Zinc oxide/Eugenol):** use for securing loose crowns/caps/fillings. Can also use to cover deep, sensitive caries.
3. **Coe-Pak:** use to stabilize loose or avulsed teeth.

Instructions for how to prepare and use these items are on the carts.

Facial Nerve Blocks



Supraorbital Nerve

for forehead lacerations

palpate supraorbital notch
above pupil
insert laterally and inject when
over notch

*Tip: place pressure from below to
prevent anesthetic from entering
eyelid*

Infraorbital Nerve

for unilateral anterior dental pain or
facial lacerations

palpate infraorbital notch
parallel with incisor aim
towards finger until you
reach the notch and inject
3cc

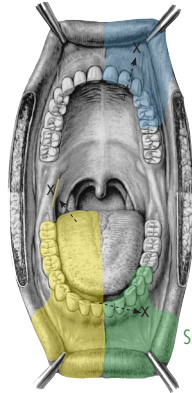
*Tip: you should be able to
palpate the needle under the
surface near the notch*

Inferior Alveolar Nerve

for unilateral mandibular dental pain

place thumb on
mandibular ramus
inject 2cc 1/4
between raphe
and thumb

----- through mucosa
——— through skin



Submental Nerve

inject 2cc around
mental foramen
beneath the 2nd
bicuspid

• Go to www.tamingthesru.com/regional-anesthesia
for videos of how to perform blocks

Abdominal Pain

Right Upper Quadrant:

- Biliary Colic
- Cholecystitis
- Hepatic abscess
- Acute hepatitis
- Perforated ulcer
- Pancreatitis
- Retrocecal appendicitis
- RLL pneumonia

Left Upper Quadrant:

- Gastritis
- Pancreatitis
- GERD
- Splenic pathology
- Cardiac pathology
- LLL pneumonia
- Pleural effusion

Diffuse:

- Peritonitis
- Early appendicitis
- Mesenteric thrombosis
- Gastroenteritis
- Dissecting or ruptured aneurysm
- Intestinal obstruction
- DKA
- Inflammatory Bowel Disease

Right Lower Quadrant:

- Appendicitis
- Meckel's diverticulitis
- Cecal diverticulitis

Left Lower Quadrant:

- Sigmoid diverticulitis

Lower Quadrant:

- Aortic aneurysm
- Ectopic pregnancy
- Ovarian cyst
- PID
- Endometriosis
- Ureteral calculi
- Psoas abscess
- Mesenteric adenitis
- Ovarian torsion
- Tubo-ovarian abscess
- Urinary tract infection

GI Bleed

- If unstable: manage with your R4 and move to SRU
- Most important lab in unstable pt=Type and Screen
- Stable: CBC, BMP, type and screen, Liver profile, PT,/INR, PTT, and 2 large bore IV's.
- Consider ECG/Troponin if symptomatic or cardiac history

1. Lower GI Bleed

- Pts complaining of only blood on the toilet paper, no concerning PMHx, no BRBP on exam and stable vital signs can go home with follow up after a normal workup (above)
- If large volume blood loss, consider obtaining a CT with and without contrast (put in "GI protocol" in comments section) to gauge if it is an active bleed that may be amenable to IR intervention

2. Upper GI Bleed

- Consider these medications when patients have active bleeding, SBP <100, orthostatic vitals or a Hb <7.
 - a. IV protonix if concern for PUD: can do bolus or intermittent dosing (80mg or 40mg BID).
 - b. IV octreotide if concern for variceal bleeding: bolus 50mcg then a drip at 50mcg/hr.
 - c. IV ceftriaxone 1gm should be given to cirrhotic patients with UGI bleeds as SBP prophylaxis.

**If the pt is on any anticoagulation or antiplatelet agent with abnormal labs (PLT <50k or INR >1.7), talk to your R4 about reversing these agents and consider obtaining TEG.

**If concern for continued uncontrolled bleeding, consult GI fellow for emergent endoscopy, and admit to MICU

Glasgow Blachford Score*

Admission Risk Marker	Score Value
1) Blood Urea (mg/dL)	
18.2-22.3	2
22.4-28	3
28-70	4
>70	6
2) Hemoglobin (g/L) for men	
12.0-13.0	1
10.0-12.0	3
<10.0	6
3) Hemoglobin (g/L) for women	
10.0-12.0	1
<10.0	6
4) Systolic Blood Pressure	
100-109	1
90-99	2
<90	3
5) Pulse >100 bpm	1
6) Presents with melena	1
7) Presents with syncope	2
8) Hepatic Disease	2
9) Cardiac Failure	2

*Applies to Upper GI bleeds only

- Scores of 0 may be eligible to go home with close follow-up
- Scores of 6 or more were associated with a greater than 50% risk of needing an intervention (endoscopy, transfusion, surgery).

Ischemic Stroke

Initial Evaluation

*USE THE STROKE ORDERSET IN EPIC!



<u>Work-up:</u>
Blood Glucose (upon arrival)
EKG
CXR
CBC
INR/PTT
BMP

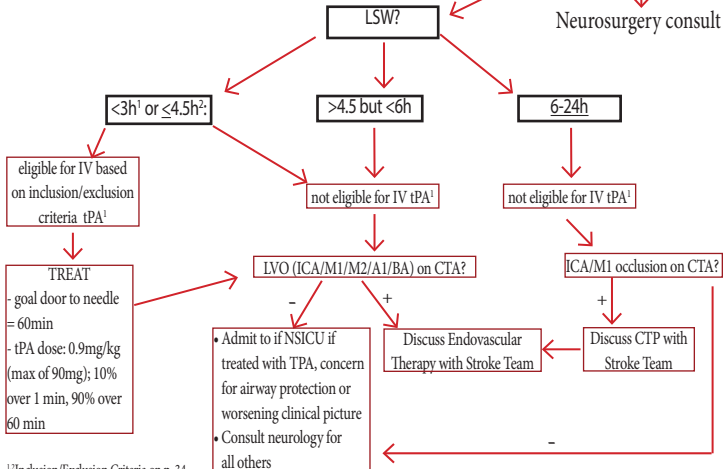
Within 15 min:

- Brief History & Neurological Exam
- NIH Stroke Scale (see p. 35)
- Establish IV access (Prefer 18ga Right A.C)
- Call Stroke Team (after consulting R4)

Within 25 Min:
 Non-Contrast Head CT (Code Stroke) +
 CTA head/neck

Evidence of intracranial
 hemorrhage?

-
 +
 Neurosurgery consult



^{1,2}Inclusion/Exclusion Criteria on p. 34

TPA inclusion/exclusion criteria for LSW < 3h

Exclusion Criteria

- Historical
 - Stroke or head trauma in previous 3 months
 - Any history of intracranial hemorrhage
 - Major surgery in the previous 14 days
 - GI or urinary tract bleeding in previous 21 days
 - Myocardial infarction in previous 3 months
 - Arterial puncture at noncompressible site in previous 7 days
- Clinical
 - Spontaneously clearing stroke symptoms
 - Only minor and isolated neurologic signs
 - Seizure at stroke onset
- Persistent SBP >185 or DBP >110 despite treatment
- Use of direct thrombin inhibitors (e.g. dabigatran, argatroban) or direct factor Xa inhibitors (e.g. rivaroxaban, apixaban) with elevated aPTT, INR, or factor Xa assay
- Active bleeding or acute trauma (fracture) on exam
- Labs
 - Platelets <100K
 - Serum glucose <50, >400
 - INR >1.7 or PT >15 sec if on warfarin
 - Elevated PTT if on heparin
- Head CT
 - Evidence of hemorrhage
 - Evidence of multilobar infarction with hypodensity involving >33% of cerebral hemisphere
 - Intracranial neoplasm, AVM, or aneurysm
- Use of dabigatran within 48hrs is relative contraindication

Relative Exclusion Criteria

- Minor or rapidly improving stroke symptoms
- Pregnancy
- Seizure at onset with postictal residual neuro impairments

Additional TPA inclusion/exclusion criteria for LSW ≤ 4.5h

tPA between 3-4.5hrs

Inclusion Criteria

- Same as for <3hr

Exclusion Criteria

- All of the above plus:
 - Age >80yr
 - Combination of both previous stroke and DM
 - NIHSS score >25
 - Oral anticoagulant use regardless of INR

Depending upon the patient's history, he/she may qualify for a wake-up MRI. For instance, if there is concern enough for a large vessel occlusion stroke (LVO) with a last known normal unclear due to symptom onset when the patient woke up, this may benefit from an MRI. Please discuss this with your R4 and Pod attending before ordering.

NIH Stroke Scale

1. Level of Consciousness	7-10. Motor (R/L arm + leg)
0 - Alert 1 - Drowsy 2 - Stuporous 3 - Coma	0 - No drift 1 - Drift 2 - Can't resist gravity 3 - No effort against gravity 4 - No movement UN - amputation/joint fusion
2. LOC questions (month, age)	11. Limb ataxia (Finger-Nose, Heel-Knee-Shin)
0 - Both correct 1 - One correct 2 - None correct	0 - Absent 1 - Present in 1 limb 2 - Present in 2 limbs
3. LOC commands (close eyes, make a fist)	12. Sensation (pinprick)
0 - Both correct 1 - One correct 2 - None correct	0 - Normal 1 - Partial loss 2 - Severe loss
4. Best Gaze	13. Best Language
0 - Normal 1 - Partial gaze palsy 2 - Forced deviation	0 - No aphasia 1 - Mild-mod aphasia 2 - Severe aphasia 3 - Mute
5. Visual fields	14. Dysarthria
0 - No visual loss 1 - Partial hemi 2 - Complete hemi 3 - Bilateral hemi	0 - None 1 - Mild-Mod 2 - Near to Unintelligible or Worse UN - intubated/barrier
6. Facial Palsy	15. Extinction and Inattention
0 - Normal 1 - Minor 2 - Partial 3 - Complete	0 - No neglect 1 - Partial neglect 2 - Complete neglect

Vertigo

Peripheral - 80%

Hx/PE:

- Sudden onset
- Severe intensity
- Duration
 - Seconds to minutes
 - Hours, days (intermittent)
- N/V more frequent/severe
- Nystagmus one direction
- Worsened by position
- No neurological findings



- Canalith repositioning maneuvers
 - Epley Maneuver (Posterior BPPV)
 - Lempert Maneuver (BBQ roll) (Lateral BPPV)
- Vestibular suppressants
 - Meclizine 25mg PO QID or
 - Diazepam 5-10mg BID
- Anti-emetic
- Follow up with PCP or ENT

Central - 20%

Hx/PE:

- Gradual or sudden onset
- Mild intensity
- Duration
 - Weeks, months (continuous)
 - Seconds to minutes (vascular)
- Nystagmus in any direction
- Little change w/ position
- Usually assoc w/ neurological findings (“Dizzy plus”)
- + HINTS exam*



- CT to r/o mass or hemorrhage
- Concern for posterior stroke / dissection
 - Consider non-contrast CT +/- CTA head and neck
- Consider Neuro consult if the above is negative, as these tests do not completely rule out central cause for vertigo

*HINTS exam may be helpful in those that are currently symptomatic but has no role if patient not vertiginous at time of exam.

Every single vertigo patient should have a thorough neuro exam performed AND documented correctly in your note.

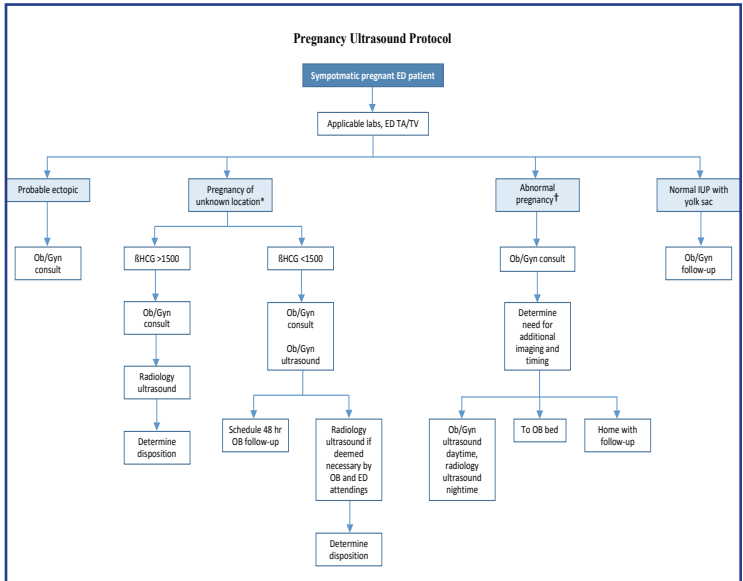
Migraine

- IVF
- Prochlorperazine 10 mg or metoclopramide 10mg IV/IM
 - +/- Diphenhydramine 25 mg IV/IM/PO
- Ketorolac 15 mg IV/IM (Not in Pregnancy)
- Consider dexamethasone 10 mg IV for patients with headache lasting longer than 72 hours or history of severe recurrent migraine
- Consider Magnesium or Depakote in refractory patients (per R4)
- *** Avoid narcotic use in migraine pts
- Consider imaging and/or further workup if: change in quality or character of headache, abnormal neurologic exam, sudden onset of HA, meningeal signs, fever

Seizure

- Seizure precautions: lay on side, suction readily available, padding to bedrails (blankets), check FSBS
- Seizures almost always end on their own without treatment
- If not, start with Versed, Ativan, or Valium. IM, IN or IV routes are acceptable. 5mg IV diazepam = 2mg IV lorazepam=4 mg IV midazolam
- Status Epilepticus is considered if either:
 - a) a seizure lasts >5min or
 - b) pt has multiple seizures without returning to baseline mental status between. This diagnosis deserves aggressive treatment, loading dose of AED and consideration of admission to NSICU.
- Patient with known seizure disorder: urine pregnancy test, antiepileptic serum levels, consider renal panel and UA
- If planning to consult Neurology, they prefer patient to have CBC, Renal, Liver panel, UA, UDS, +/- head CT, and CXR
- Patient with new diagnosis of seizures: non-contrast head CT, renal panel, UA, UDS, urine pregnancy test at minimum. Discuss with your R4 for other tests based on patient's past medical history and circumstances involving seizure (ie drug/EtOH withdrawal)
- Consider discharge on Ativan 0.5mg BID x 3 days (local practice

Rule Out Ectopic Pregnancy



*concern for cervical ectopic, interstitial ectopic, marginal pregnancy, heterotopic pregnancy, pregnancy with abnormal uterine anatomy are included here
^could include fetal demise, subchorionic hemorrhage, intramural hematoma, cervical funneling, molar pregnancy

- ED will transfer US images to EPIC at time of consult - this occurs once you sign the qPathE chart; please ask your R4 if you have any questions on this
- ED resident will speak with radiology to initiate call-in if overnight
- If radiology or GYN consultants review/interpret ED obtained images, they should document this in patient's chart.

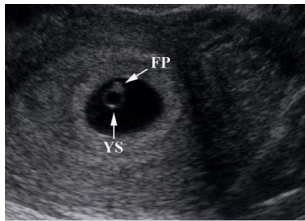
Fetal Development

AS FIRST ABLE TO BE SEEN ON ULTRASOUND

Week 4 - Gestational Sac (GS)

Week 5 - Yolk Sac (YS)

Week 6 - Fetal Pole (FP)



Hyperemesis Gravidarum

- Hydrate the patient aggressively
- Treat nausea.
 - OB uses hydroxyzine and B6 aggressively. These should be first line, and consider sending the patient home on both
 - Phenergan is Class C while ondansetron is class B
- Labs: renal panel, UA (for ketosis)
- Consider D5 LR to help with ketone clearance
- Dispo: home if tolerating PO, clearance of ketones. May need antiemetics to go home with. If refractory to treatment, may require GYN consultation/admission

Dysfunctional Uterine Bleeding

Workup typically consists of pelvic exam, wet prep, G/C swabs, urine pregnancy test, UA, +/- CBC

1) Anovulatory Bleeding (90%): OCPs first line but do not prescribe OCP taper unless patient has guaranteed follow up. NSAIDs work also.

- Possible taper:

- 1) Ortho-Cyclen 1 tab PO TID X3 days or until bleeding subsides
- 2) Then 1 tab PO BID X 3-5 days,
- 3) then 1 tab PO qd until all active tabs given
- 4) Skip inert tabs.

- Another taper option:

- 1) Moderate-estrogen OCP (LoOvral) one active pill QID X 4 days
- 2) Then one TID X 3 days,
- 3) Then one BID X 2 days
- 4) Then daily X 3 weeks,
- 5) Then skip 1 week
- 6) Then cycle on OCP for at least 3 months.

- Contraindications to OCP: Previous thromboembolic event or stroke, history of estrogen-dependent tumor, active liver disease, pregnancy, hypertriglyceridemia, older than 35 and smokes > 15 cigarettes per day, age > 40.

2) Ovulatory Bleeding (10%):

- NSAIDs
- Can use above tapers if pt has follow-up

Pelvic Inflammatory Disease

1) Diagnosis: at a minimum patient needs cervical/uterine motion tenderness, or adnexal* tenderness + at least 1 of the following:

- Abnormal cervical discharge
- Pelvic abscess or inflammatory complex on bimanual exam
- Positive gonorrhea or Chlamydia test
- Leukocytosis
- Elevated ESR or CRP
- Temperature $>38^{\circ}\text{C}$

*Adnexal tenderness should prompt transvaginal US for TOA

- consider testing for HIV, syphilis as well

2) Treatment:

a. Inpatient:

- Doxycycline 100mg IV/PO BID + [Cefoxitin 2g IV QID or Cefotetan 2g IV BID]

b. Outpatient:

- Ceftriaxone 250mg IM once + Doxycycline 100mg PO BID x14d +/- metronidazole 500mg BID x14d

3) When to consult GYN for admission:

- Severe clinical disease with high fever, TOA, peritonitis
- When other causes of abdominal pain are not yet excluded such as ectopic pregnancy or appendicitis
- The patient is pregnant
- Failure to respond to outpatient oral therapy
- Inability to tolerate PO
- Inability to follow outpatient regimen (due to socioeconomic status, young age, etc)
- The patient is immunocompromised

Sexually Transmitted Infections

- Labs: Wet prep (trich, BV, yeast) come back within 60 minutes and HIV within 1-2 hours, but G/C and syphilis take 24 hours
- Males: Offer to swab them. If they refuse, still treat them. If rectal pain or history of UTIs, consider prostatitis.
- Females: Do a pelvic exam to make sure they do not have evidence of PID and check urine pregnancy test.
- Treatment for uncomplicated cervicitis & urethritis: 250 mg ceftriaxone IM + 1 g azithromycin PO + 2 g metronidazole PO
- Treatment for prostatitis:
 - a. <35yo: doxycycline 100mg PO BID x21d + 250mg ceftriaxone IM x1
 - b. >35yo: ciprofloxacin 500mg qday x 21d
- D/C Instructions: abstain from intercourse for 2 weeks, repeat HIV in 6 months and alert their partners that they have been treated

Miscarriage

1) Threatened Abortion: Vaginal bleeding in pregnancy and closed cervix (50% of these will go on to spontaneously abort, 50% will go on to have normal pregnancy)

2) Complete abortion: All products of uterus are expelled from uterus and identified, closed cervix, thin endometrial stripe

3) Incomplete abortion: retention of some products of conception

4) Inevitable abortion: vaginal bleeding with dilated cervix

5) Spontaneous abortion: one that occurs naturally

6) Missed abortion: retention of fetus that has been dead at least 8 weeks

- Work-up: Upreg, UA, Type & Screen, Serum Quant Hcg, CBC, Pelvic Exam, Ultrasound if IUP has not been established, can screen for presence of IUP presently

- consult GYN on most of these for at least follow-up appts

Disposition: Most can go home with follow-up but GYN can help

Common Splints

- **Thumb Spica:**
Injuries to scaphoid/ trapezium; extra-articular first metacarpal fractures; Stable thumb fractures.



- **Sugar Tong:**
Acute distal Radius & Ulnar Fractures.



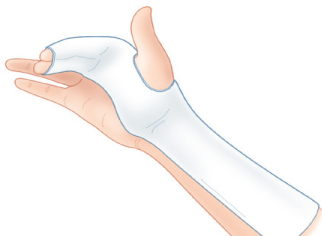
- **Volar Wrist:**
Wrist, 2nd-5th metacarpals, and carpal fx other than scaphoid or trapezium.



- **Ulnar Gutter:**
4th & 5th proximal/ middle phalangeal shaft fractures; select metacarpal fractures.



- **Radial Gutter:**
2nd & 3rd proximal/ middle phalangeal shaft fractures; select metacarpal fractures.



Picture courtesy of: <https://accessphysiotherapy.mhmedical.com/content.aspx?bookid=1132§ionid=64419293>

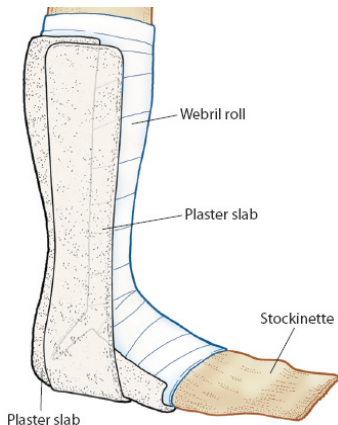
Common Splints



- Posterior Long Arm: Distal humeral fractures; proximal/midshaft forearm fractures.

- Stirrup/Posterior ankle: distal leg, ankle, tarsal, and metatarsal fractures.

Photo courtesy of: <https://accessemergencymedicine.mhmedical.com/ViewLarge.aspx?figid=64413354&gbosContainerID=null&gbosid=null&groupID=null>



Ottawa Ankle Rules

Obtain X-rays if:

- Pain in the malleolar zone + 1 of the following:
 - a. Bone tenderness along the distal 6 cm of the posterior edge of the tibia or tip of the medial malleolus
 - b. Bone tenderness along the distal 6 cm of the posterior edge of the fibula or tip of the lateral malleolus
 - c. An inability to bear weight both immediately and in the emergency department for four steps

Ottawa Foot Rules

Obtain X-rays if:

- pain in the midfoot zone +1 of the following:
 - a. Bone tenderness at the base of the fifth metatarsal
 - b. Bone tenderness at the navicular bone
 - c. An inability to bear weight both immediately and in the emergency department for four steps.

Low Back Pain

Red Flags (needs further imaging +/- labs):

- Age <16 or >50
- Weight loss
- Night sweats
- Recent trauma
- Weakness
- Bowel/bladder habit changes
- Intractable pain
- Fever (concern for pyelonephritis or epidural abscess)
- History of IV drug abuse or cancer
- Urinary retention or saddle anesthesia
- New pain in an older adult

Acute: < 6 wks
Subacute: 6wks - 12m
Chronic: > 12m

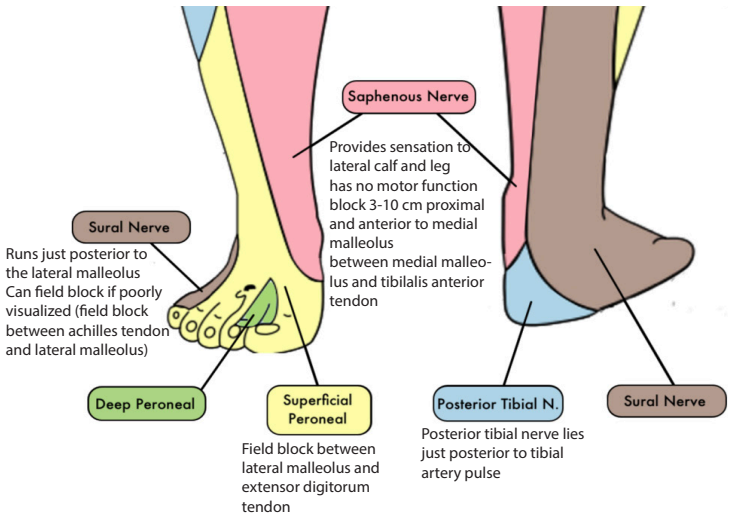
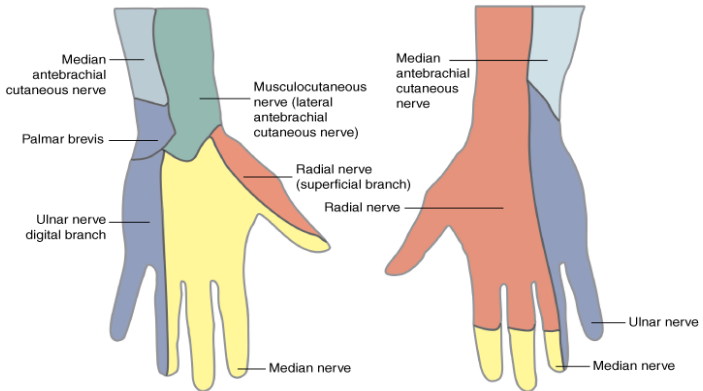
- No need to image unless any red flag symptoms
- Common treatments: ibuprofen and cyclobenzaprine or diazepam with discharge information regarding back exercises and PCP f/u

Key clinical features:

- Worse with standing, better leaning forward: spinal stenosis
- Worse with sitting, cough and valsalva: disc herniation

Hip flexion: L1-L3	Patellar reflex: L4
Knee flexion: L5-S1	Achilles reflex: S1
Dorsiflexion: L4-5	Perineal sensation/anal wink: S2-S4
Plantarflexion: S1-2	

Distal Nerve Blocks



- Videos on nerve blocks available online [@tamingtheSRU.com/regional-anesthesia](https://www.tamingtheSRU.com/regional-anesthesia)

Wound Repair Guidelines

Location	Skin	Deep*	Days Left In
Scalp	Staples, 5-0/4-0/3-0 Prolene/Ethilon	4-0 monocryl/ Chromic Gut	7-10
Ear	6-0 Prolene/ Ethilon	5-0 monocryl/ Chromic Gut	7-10
Eyelid	7-0/6-0 Prolene/ Ethilon/ FAST Gut		5-7
Nose	6-0 Prolene/ Ethilon/ FAST Gut	5-0 monocryl/ Chromic Gut	5-7
Lip	6-0 Chromic Gut	5-0 monocryl/ Chromic Gut	5-7
Oral Mucosa		4-0/5-0 monocryl/ Chromic Gut	5-7
Face/Forehead	6-0 Prolene/ Ethilon/ FAST Gut	5-0 monocryl/ Chromic Gut	4-5
Trunk	5-0/4-0/3-0 Prolene/Ethilon	3-0 monocryl/ Chromic Gut	8-10 (Chest/ Abd) 12-14 (Back)
Extremities	Staples, 6-0/5-0 Prolene/ Ethilon	4-0 monocryl/ Chromic Gut	8-10
Hand	6-0/5-0 Chromic Gut	5-0 monocryl/ Chromic Gut	8-10 10-12 (tip)
Foot/Sole	4-0/3-0 Prolene/ Ethilon	4-0 monocryl/ Chromic Gut	12-14

* If wound is “clean” low risk of infection can use vicryl as alternative to monocryl.

Topical Anesthetics

Topical Anesthetic	Common Uses	Concentration	Max Dose for 70kg pt
1% Lidocaine w/o epinephrine	Fingers, Toes, Nose	10mg/ml	28ml (280mg)
1% Lidocaine w/ epinephrine	Suturing, I&Ds	10mg/ml	49ml (490mg)
2% Viscious Lidocaine	Mucous Membranes, Pre-NP Scope	20mg/ml	14ml
4% Lidocaine	Atomize or Nebulize onto Mucous Membranes	40mg/ml	7ml
0.25% bupivacaine	Nerve Blocks	2.5mg/ml	70ml

*Toxic Dose of Lidocaine without Epi: 4 mg/kg; with Epi: 7 mg/kg

*Toxic Dose of Bupivacaine: 3 mg/kg

Absorbable Suture Material

Material	Structure	Tissue Rx	Tensile Strength	Half-life (d)
Chromic Gut	Natural	++++	++	12
FAST Gut	Natural	++++	++	7
Vicryl	Braided	++	++++	28
Monocryl	monofilament	+	+++	7

Non-Absorbable Suture Material

Material	Structure	Tissue Rx	Tissue Strength	Knot Lock
Ethilon	Monofilament	++	+++	++
Prolene	Monofilament	+	++++	+

Pneumonia

Recent definition change with the 2016 IDSA guidelines. HCAP is no longer recognized as a clinical entity. Many of the patients previously treated as HCAP can now be treated with CAP coverage. Discuss with R4 on who deserves broad spectrum antibiotics vs typical CAP coverage.

1) Hospital Acquired Pneumonia (HAP)/Ventilator Acquired Pneumonia (VAP):

- HAP=Development of pneumonia following 48h of admission which was not present on admission to hospital or healthcare facility
- VAP=Development of pneumonia 48h after intubation
- Tailor treatment to risk factors for MDRO infection and pt. specific factors!

<i>VAP: Patient develops pneumonia 48 hours after intubation</i>	<i>HAP: Patient develops pneumonia 48 hours after hospital admission</i>
VAP MDRO risk factors	HAP MDRO risk factors
Develops ARDS Presents with septic shock Has received IV antibiotics in the last 90 days	Requires ventilatory support Presents with septic shock Has received antibiotics in the last 90 days

Recommended Initial Antibiotic Choices for Select Populations

MRSA coverage: vancomycin 15mg/kg IV (consider 25mg/kg loading dose) OR linezolid 600mg IV

Pseudomonal coverage: piperacillin-tazobactam 4.5g IV OR cefepime 2g IV OR levofloxacin 750mg IV OR meropenem 1g IV OR tobramycin inhaled/IV

2) Community Acquired Pneumonia (CAP):

Treatment:

- Cover for common pathogens in conjunction with local antibiotics
- Based on high macrolide resistance at UCMC, most are treated as detailed in shaded box below.

Community Acquired Pneumonia	
Patient Population	Outpatient Antibiotic Regimen
Well-appearing patients with no comorbidities and no recent antibiotic use in an area without significant macrolide resistance	a macrolide ¹ (e.g., azithromycin 500 mg followed by 250 mg for four days; clarithromycin 500 mg BID) OR a doxycycline ² (100 mg BID)
Well-appearing patients with no comorbidities and no recent antibiotic use in an area with significant macrolide resistance	a beta-lactam (e.g., amoxicillin 1 g TID; amoxicillin-clavulanate XR 2 g BID) plus a macrolide or doxycycline OR a respiratory fluoroquinolone (e.g., levofloxacin 750 mg daily)
Well-appearing patients with significant medical comorbidities ⁴ or with recent antibiotic use ⁵	a beta-lactam plus a macrolide or doxycycline OR a respiratory fluoroquinolone

1. Patients with a history of prolonged QTc interval should not receive macrolides. 2. Doxycycline is contraindicated for pregnant patients. 3. Fluoroquinolones may carry a higher risk for *Clostridium difficile* infection, and carry a black box warning for tendon rupture, although rare. 4. This includes COPD, DM, CHF, ESRD, alcoholism, liver failure, cancer or any other history of immunosuppression. Based on guidelines and recommendations from the ATS and IDSA. 5. Within the last 90 days.

3) Disposition:

Recommend using CURB-65 as a guideline:

Score 0-1: Consider outpatient management

Score 2: Consider admission

Score 3 or greater: consider ICU or stepdown admission

CURB-65 Score

Confusion (1 point)

BUN >19 mg/dL (1 point)

Respiratory Rate > 30 (1 point)

Systolic Blood Pressure < 90 mmHg or Diastolic

Blood Pressure < 60 mmHg (1 point)

Age > 65 (1 point)

Score 0-1: 1.5% mortality risk

Score 2: 9.2% mortality risk

Score 3 or greater: 22% mortality risk

Asthma

- To move these patients through, you will need to reassess them more frequently than with other complaints. Use your RTs for help.
- If known diagnosis of asthma, and patient is wheezing or coughing, no need for CXR/labs. Physical Exam is enough!
- Obtain peak flow

1) Mild/moderate exacerbations:

- ‘Bronchodilator Panel’ order in EPIC: Ipratropium (Atrovent®) 0.5 mg / Albuterol (Proventil®) 2.5 mg x 1 dose then Albuterol (Proventil®) 2.5 mg in NS every 20 minutes x 2 doses.
- Steroid burst: Prednisone 40-60mg PO
- Consider Magnesium Sulfate 2g IV over 20min early

2) Severe Exacerbations:

- Consider BIPAP.
- Consider subcutaneous epinephrine or terbutaline.
- Discuss additional therapies with R4.

3) Goals for discharge:

1. No breathlessness or desats with walking.
2. SaO₂ > 95%
3. Improvement in RR, peak flow, pulmonary exam.

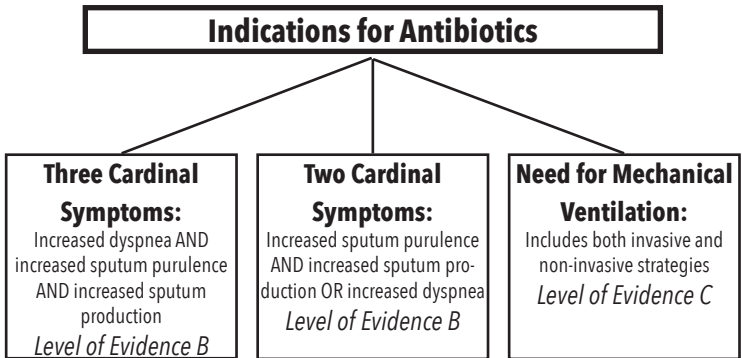
- Discharge home with Prednisone 40 mg for total of 5 days, along with inhaler (MDI) and spacer

4) Admission:

- Consider CDU admission if they need more time
- Look at previous admissions to see length of stay average
- Stepdown/ICU if on q1h treatments or continuous nebs

COPD

- Treatment is very similar to that of asthma initially.
- VBG useful to compare to baseline pH/PCO₂.
- Patients may be discharged with pulse ox greater than 92% or equal to baseline on room air or home O₂ with ambulation 1 hour after last albuterol.
- Utilize RTs! They are a phenomenal resource. They can obtain peak flow, help with re-dosing of bronchodilators, and put your patients on CPAP/BiPAP. They live next to the A-Pod attending desk or you can call them at 688-5467 or 688-5468.
- Antibiotics in COPD:
 - First Line Antibiotics: Azithromycin 500mg PO once then 250mg PO daily for 4 days (.zpak in Epic).



Oxygenation Adjuncts

- 1) Nasal Cannula: Can supply O₂ concentration up to 28-44%; rates above 5 L/min may be too turbulent to be effective.
- 2) Non-Rebreather: Useful in patients requiring >5-6 L/min, not usually sustainable. Appropriate in patients with a (quickly) fixable source of hypoxia or as a bridge to more definitive oxygen therapy.
- 3) Venti-Mask: Allows FiO₂ of 30-50% without bumping up to a NRB. Good for mouth breathers.

4) High Flow Nasal Cannula: Up to 60L/min humidified and heated circuit, good for intolerance of BiPAP as it provides some PEEP.

- All of the above only help with oxygenation, none augment a patient's ventilation
- Indications for NIPPV are quickly reversible hypoxic and/or hypercarbic conditions (ie asthma, COPD, CHF).

Non-invasive Positive Pressure Ventilation

1) CPAP: Continuous positive airway pressure delivered via mask, intended to improve oxygenation by providing non-invasive PEEP. Patients need to be able to tolerate the mask and, in general, must be awake enough to pull it off themselves. Can deliver FiO_2 as high as 100%

2) BiPap: Bi-level positive airway pressure delivered via mask, intended to add a component of improved ventilation to CPAP. Same patient requirements as CPAP.

Mechanical Ventilation

Ventilation: ability to exhale CO_2 which is measured by pH and pCO_2 . A patient's Minute Ventilation is proportional to respiratory rate and tidal volume ($MV=RR \times TV$).

Oxygenation: ability to oxygenate which is measured by SpO_2 and pO_2 . Function of both the number of alveoli available to exchange O_2 and the fraction of inspired O_2 (FiO_2).

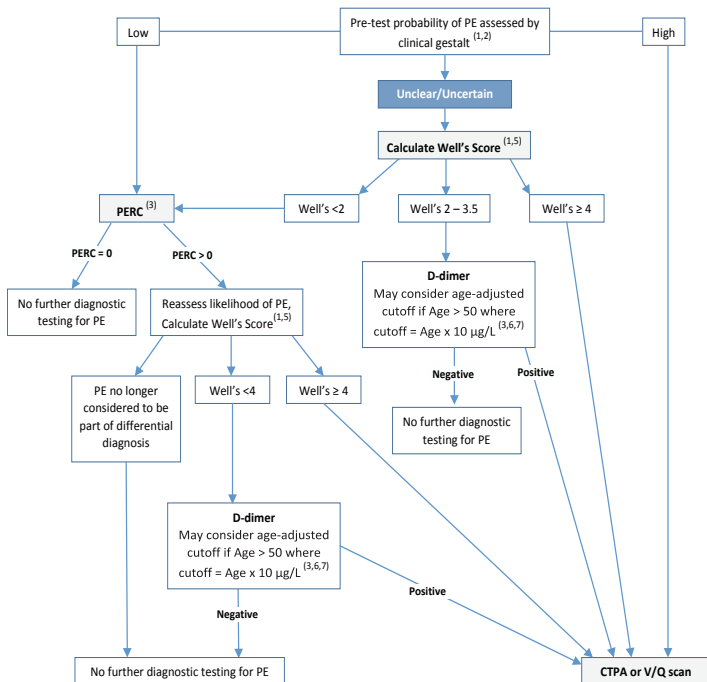
Desired Lab/Vital Change	Physiologic change	Vent change
Increase pH/Decrease CO_2	Increase MV	Increase RR Increase TV
Decrease pH/Increase CO_2	Decrease MV	Decrease RR Decrease TV
Increase pO_2	Increase Alveoli Recruitment	Increase PEEP*
Increase pO_2	Increase inspired O_2	Increase FiO_2

* PEEP: Positive End Expiratory Pressure

Pulmonary Embolus

Pulmonary Embolism Diagnostic Algorithm

PE Diagnosis 4/18/2018



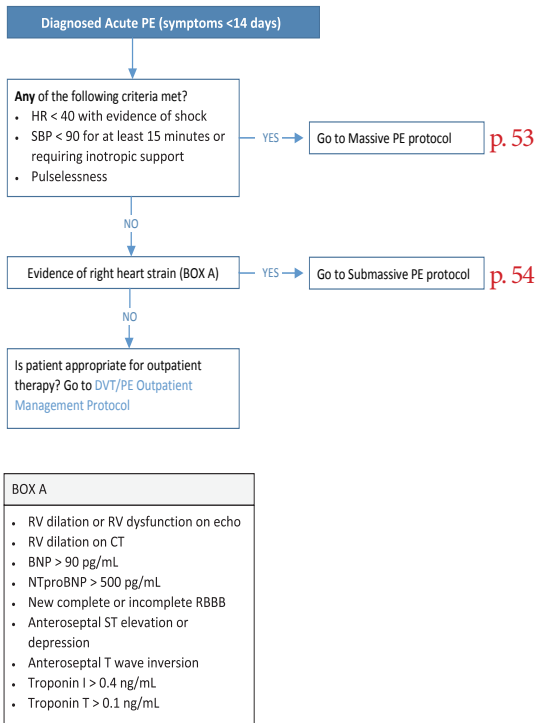
PE Rule-out Criteria (PERC)

- Age <50yo?
- Pulse <100bpm?
- Pulse Ox >94% on RA?
- No hemoptysis ?
- No recent surgery?
- No prior DVTs/PEs?
- No oral hormones?

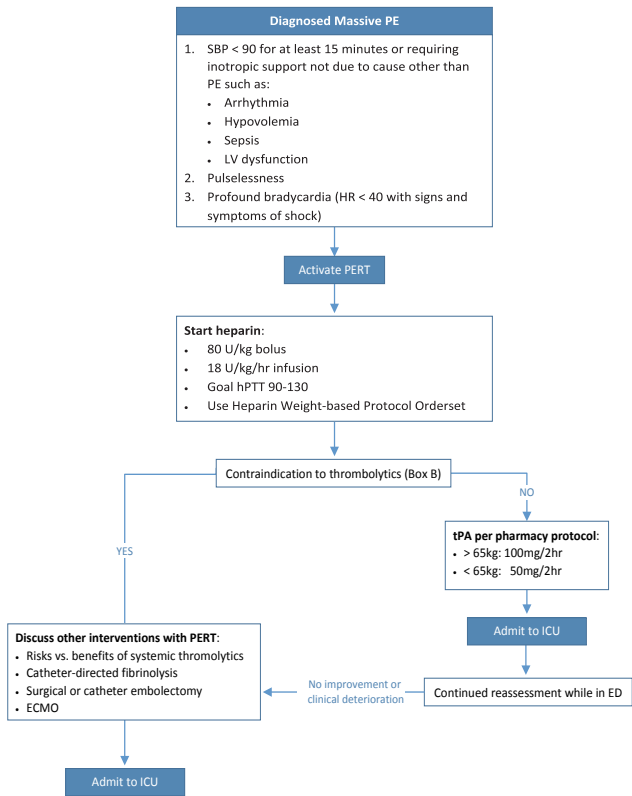
* full diagnostic and treatment protocol on www.tamingthesru.com

Pulmonary Embolus Treatment Algorithm

Acute PE Protocol



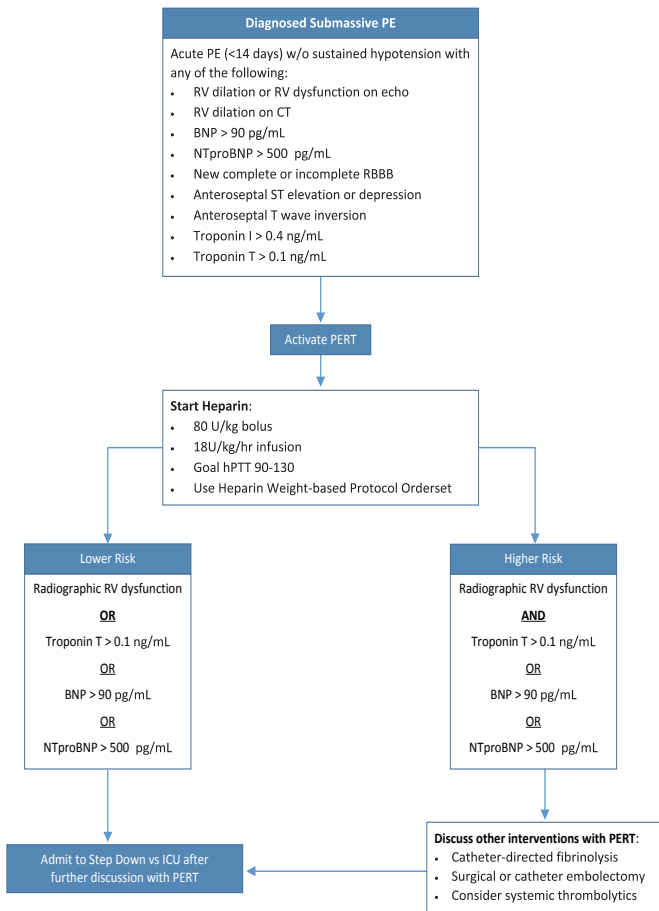
Massive PE Treatment



BOX B: Contraindications to tPA (from ACC/AHA guidelines)

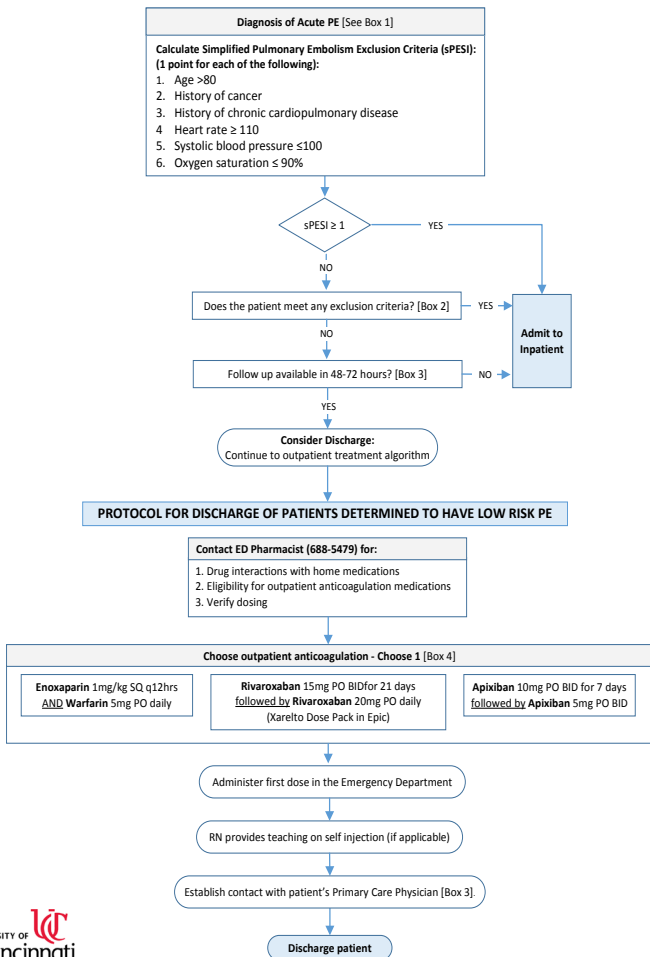
- Any prior ICH
- Known intracranial cerebrovascular disease (i.e. AVM)
- Known malignant intracranial neoplasm
- Ischemic stroke within 3 months
- Suspected aortic dissection
- Recent surgery on spinal cord or brain
- Active bleeding or bleeding diatheses
- Recent closed head/ facial trauma w/ radiographic injury of bony fractures or brain injury

Submassive PE Treatment



Outpatient PE Treatment

DISCHARGE OF PATIENTS WITH LOW RISK PULMONARY EMBOLISM (PE)



Outpatient PE Treatment

DISCHARGE OF PATIENTS WITH LOW RISK PULMONARY EMBOLISM (PE)

Box 1: Diagnosis of Acute PE

1. One of the following:

- New filling defect on CTPA
- New filling defect on pulmonary angiography
- High probability VQ Scan
- Non-diagnostic VQ w/ new DVT on venous US

AND

2. Symptoms of dyspnea/chest pain <14 days

AND

3. Not currently on anticoagulation for PE

Box 3: Establishing Follow-Up

1. Outside Hospital PCP:

- Establish contact with PCP or on-call PCP (after hours), confirming follow-up in 48-72 hours **by phone**
- Physician discretion on patient-by-patient basis on adequacy of follow-up

2. Hoxworth Patient or No PCP:

- Establish follow-up through established protocols at www.tamingthesru.com

Box 2: Exclusion Criteria for Outpatient Treatment

1. Age <18
2. Other medical reason for admission
3. Social circumstances requiring admission
4. Relative or absolute contraindication to outpatient anticoagulation:
 - Documented history of HIT or warfarin skin necrosis
 - Coagulopathy (INR >1.7)
 - Platelets < 75 x10⁹/L
 - High risk of bleeding (recent surgery, GI bleed, stroke)
 - CrCl < 30 ml/min
 - Severe liver impairment (Childs Pugh B/C)
 - Sustained BP >200/100
 - Morbid obesity (BMI >35)
5. Meets criteria for submassive pulmonary embolism:
 - a. Myocardial Necrosis/ Troponin elevation

OR

b. RV Dysfunction:

- RV/LV Diameter ≥ 0.9 on apical 4 view or CT
- NTproBNP > 500 pg/ml
- BNP elevation >90 pg/ml
- EKG w/ new RBBB, new anteroseptal T-wave inversion or ST elevation/depression

6. Currently on anticoagulation for other medical reason

7. Pregnancy

8. Physician discretion

Box 4: Choice of Anticoagulation Regimen

1. Patient preference
2. Cost
3. Availability given insurance status
4. Ability to comply with subcutaneous injections
5. Safety and efficacy

DVT

Wells Score For DVT Risk Stratification	Points
Active Cancer (tx within last 6 months or palliative)?	+1
Calf Swelling >3 cm compared to other calf (measured 10cm below tibial tuberosity)?	+1
Collateral superficial veins (non-varicose)?	+1
Pitting Edema in symptomatic leg?	+1
Previous DVT?	+1
Swelling of entire leg?	+1
Localized pain along distribution of deep venous system?	+1
Paralysis, paresis or recent case immobilization of lower extremities?	+1
Recently bedridden >3d or major surgery requiring regional or general anesthetic in past 4 weeks?	+1
Alternative diagnosis at least as likely?	-2

Score ≤ 3 : DVT is less unlikely, consider D-dimer to r/o DVT

Score ≥ 3 : DVT likely, consider imaging

DVT Work-up and Treatment:

- 1) If Well's <3 & negative D-dimer: discharge without further vascular imaging or anticoagulation.
- 2) If + D-Dimer, or Well's ≥ 3 , obtain venous duplex of lower extremity via vascular department.
 - Treat if positive duplex study
 - If negative duplex, and Wells ≥ 3 , perform D-dimer; if + Dimer, repeat LE duplex in 3-7 days.
- 3) If +D-dimer or Well's ≥ 3 overnight:
 - Order a LE venous duplex in EPIC.
 - Instruct the patient to also call echo/vascular the next day.
 - Put on the order that the patient should come back to the ED if the study is positive.
 - If renal function is normal, give the pt 1.5mg/kg of enoxaparin or one-time dose of DOAC (DVT rx for 24h).

Glasgow Coma Scale

Eye (E)

4. Eyes opening spontaneously
3. Eye opening to speech
2. Eye opening in response to pain
1. No eye opening

Verbal (V)

5. Oriented
4. Confused
3. Inappropriate words
2. Incomprehensible sounds
1. No verbal response

Motor (M)*

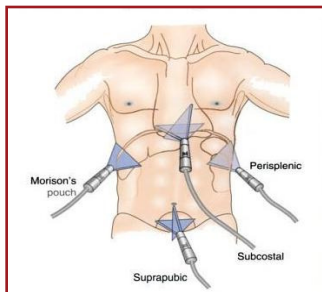
6. Obeys commands
5. Localizes (across midline) to pain
4. Withdrawal to pain
3. Abnormal flexion to pain
2. Extension to pain
1. No motor response

*Score patient's best extremity

FAST Exam

Focus Assessment with Sonography in Trauma:

- Developed as a screening tool to identify free fluid in the hypotensive (SBP <90) blunt trauma patient, therefore identifying those who should be triaged directly to an OR instead of CT scan first.
- high false negative rate when <200cc of hemoperitoneum



Minor Head Trauma

- Minor head injury is defined as witnessed loss of consciousness, definite amnesia or witnessed disorientation in a patient with a GCS score of ≥ 13 .
- These rules for ordering head CT's are not applicable if: pt is clinically intoxicated, pt is taking anticoagulants, has a bleeding disorder, age less than 16 or an obvious open skull fracture.

CT IF ANY OF THE BELOW ARE PRESENT		
Canadian Head CT Rules	High Risk Features	Medium Risk Features
	GCS < 15 at 2 hours after injury Open/depressed skull fracture Basilar skull fracture signs hemotympanum, raccoon eyes, Battles sign CSF Otorrhea/Rhinorrhea Vomiting ≥ 2 episodes Age > 65	Amnesia > 30 minutes before impact Dangerous mechanism pedestrian vs auto, ejections, fall from > 3 feet or 5 stairs
	Mild Head Injury Witnessed LOC, definite amnesia, witnessed disorientation in patients with a GCS of 13-15	
	SENSITIVITY - 100% SPECIFICITY 60%	

CT IF ANY OF THE FOLLOWING ARE PRESENT	
New Orleans Head CT Rules	Seizure Visible trauma above the clavicles Drug or EtOH ingestion Headache Vomiting Age > 60 Short term memory loss anterograde amnesia
	SENSITIVITY - 82% SPECIFICITY 26%

- When discharging patients diagnosed with mTBI use the dot phrase **.eddcneuro** to refer them to mTBI clinic. These instructions also include information about symptom management and provide a hotline to call with any questions.

C-Spine Injury

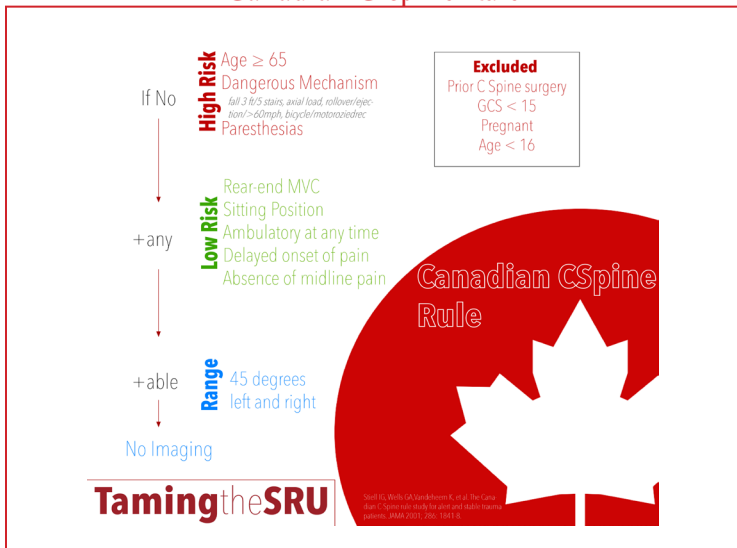
- These rules are not applicable if: pt is altered, taking anticoagulants, has a bleeding disorder, prior C-spine surgery or age less than 16.

1) **NEXUS Criteria:** Identifies who does not need imaging of their C-spine:

- There is no posterior midline cervical tenderness
- There is no evidence of intoxication
- The patient is alert and oriented to person, place, time, and event
- There is no focal neurological deficit
- There are no painful distracting injuries (e.g., long bone fracture)

2) **Canadian C-spine Rule:** Applies to trauma patients who are a GCS

Canadian C-spine Rule



Trauma STAT Criteria

Intubated or assisted ventilation

Respiratory rate <10 or >29

SBP <90mmHg

≥70yo with SBP >100mmHg

Receiving blood product

GCS ≤13

Penetrating injury to the head, neck, or torso

GSW to the extremity proximal to the knee

or elbow

Opened or depressed skull fracture

Paralysis or suspected spinal cord injury

Flail chest

Mechanically unstable pelvic fracture (T-pod)

Two or more proximal long bone fractures

Amputation proximal to the wrist or ankle

Crushed, degloved, or mangled extremity

Pulseless extremity - to include tourniquet application

Combination trauma with burns >15% TBSA

Positive FAST exam

EM physician discretion

Trauma ALERT Criteria

Fall >20 feet

>70 years old on therapeutic anticoagulation with suspected traumatic injury

High risk motor vehicle crash:

Ejection from vehicle

Death in same passenger compartment

Rollover MVC

Bicyclist/Pedestrian struck or thrown

Motorcycle crash >20mph

Suspicion of hanging

Penetrating injury (not GSW) to the extremity proximal to the knee or elbow

EM physician discretion

Trauma CONSULT Criteria

Traumatic injury that requires admission to the Trauma service

Traumatic injury admitted by another service with plans for operative intervention within 24 hours

EM physician discretion

Trauma Activation: 584-4444

STATs should not be
in B-pod

If you have a pt
who meets STAT
criteria, tell your R4
immediately

- Be watchful and available for trauma team arrival to give brief report and reason for consult.

Sickle Cell Approach

- ALWAYS look at patient's home pain regimen to avoid a therapeutic misadventure. Reviewing chart for previous regimens/presentation can also help
- Talk to your R4 regarding appropriateness for treatment using the pathway below which consists of rapid re-dosing of IV opioids to get pain under control initially.
- Treatment should include oral medications.
- IV Fluids may help prevent sickling. Use caution in pts with Pulm HTN!
- During business hours, the sickle cell clinic can help facilitate a discharge plan.
- Labs: For uncomplicated sickle cell crisis typical workup includes CBC, BMP, Retic count, LDH.
- CXR and EKG if experiencing chest pain, SOB or fever.
- Acute Chest Syndrome: diagnostic criteria require new infiltrate + fever and/or respiratory symptoms, however consider this in any new pulmonary illness

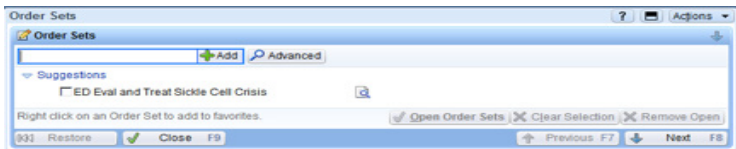
Sickle Cell Vaso-Occlusive Crisis Pathway

NOTE: Even if using this order set you may supplement pain medication as deemed necessary at any time, either with opiates or non-opiate medications.

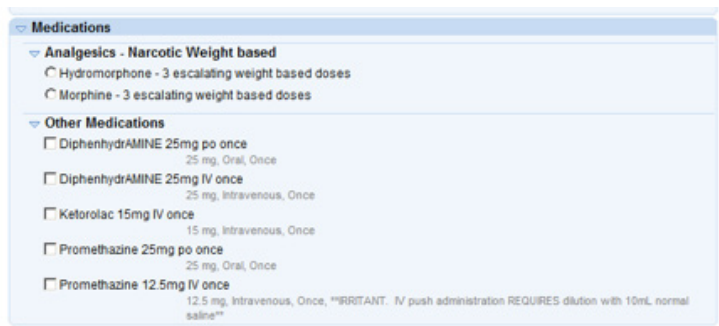
- Inclusion Criteria: Non complicated vaso-occlusive crisis.
- Exclusion Criteria: >24 visits to ANY ED in 12 months, concern for complications (sepsis, ACS, Acute chest, etc).

HOW TO ORDER:

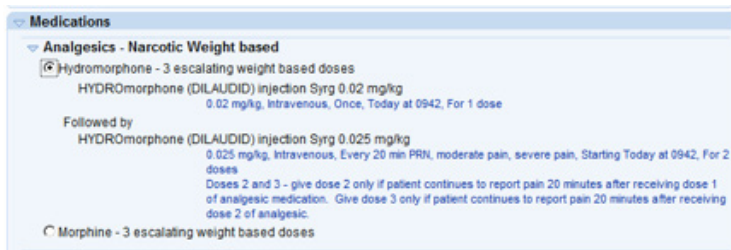
1) If you want to enter weight-based dosing for any sickle cell disease patient, study or not, go to order sets, type in "ED sickle" and select "ED Eval and Treat Sickle Cell Crisis".



2) You will then see an array of diagnostic and therapeutic options including labs and other diagnostic tests. The opioid section looks like this:



3) Select either hydromorphone or morphine and it will look like this:



- 4) The nurses will see both a dose and a total volume on their screen.
- 5) If the patient has a customized, patient-specific order set, you will see something like this when you open the “ED Eval and Treat Sickle Cell Crisis” order set. Each one, obviously, will be different.

Medications

▼ Analgesics - Narcotics (Individual dosing recommendation for Sub-A)

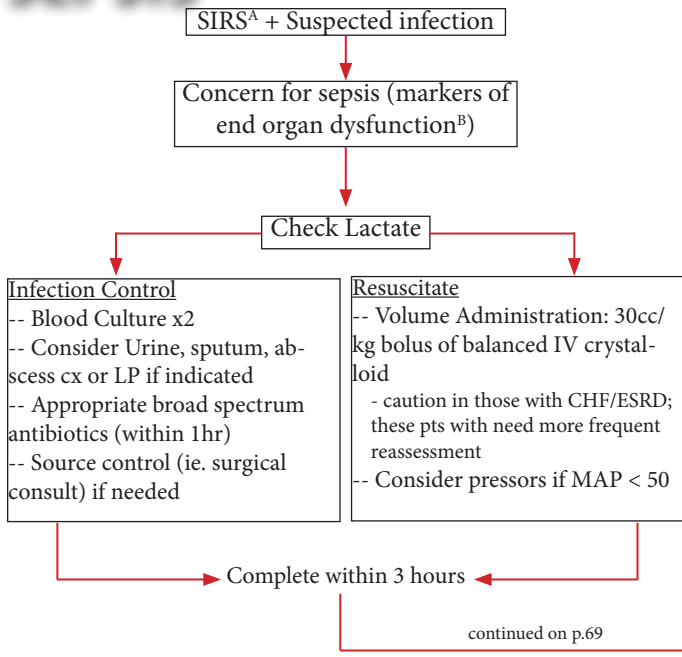
NIHSCCIndDoseArm Frank is currently enrolled in a study to determine optimal analgesic medication dosing in the ED. The preset doses in this section of the order set **have been specifically calculated for this patient** based on his outpatient medication regimen and other factors. The final decision on what dose to administer is the responsibility of the ordering physician and the doses below can be changed if necessary based on clinical circumstances at the time of treatment. If you have any question - please contact Dr. Christopher Miller at ...

The recommended dosing for NIHSCCIndDoseArm Frank is: Morphine 10mg IV q20 minutes prn pain, up to 3 doses

morphine Syrg 10 mg
10 mg, intravenous, Every 20 min PRN, severe pain, Starting Today at 1021, For 3 doses

HYDROMorphone injection
Intravenous, Once

SEPSIS*



A: SIRS Criteria (2 of 4)

Temp >38 or <36
HR >90
RR >20 or PaCO₂ <32
WBC >12K, <4K, or >10% bands

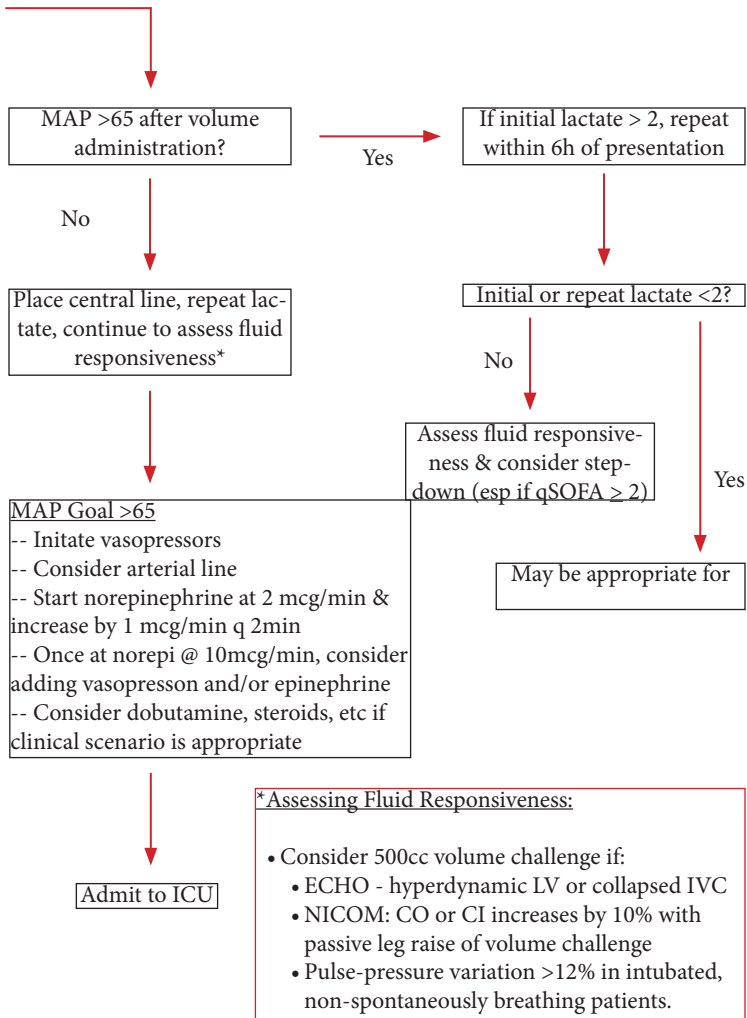
C: qSofa Criteria (2 of 3)

SBP <100mmHg
Altered Mental Status (GCS <15)
RR >22

B: Markers of End Organ Dysfunction

qSOFA >2^C
Lactate >4
SBP <90, MAP <70
Cr >2.0
Bilirubin >2.0
Platelets <100k
INR >1.5

*Adapted from a pathway created by Dr. Baez & Summers



Pressors/Inotropes

Drug	Starting Dose	Max dose	Cardiac Effect	BP effect
Norepinephrine	8-12 mcg/min	30 mcg/min	+	++
Epinephrine	0.1-1 mcg/kg/min		++	+
Vasopressin	0.04 U/min	0.04 U/min	Neutral	+
Phenylephrine	100-180 mcg/min	0.4-9 mcg/kg/min	-	+
Dobutamine	2.5 mcg/kg/min	10-40 mcg/kg/min	++	-
Milrinone	50 mcg/kg over 10 min	0.3-75mcg/kg/min	++	-
Dopamine	2 mcg/kg/min	25-50 mcg/kg/min	+	+

- Consider calcium replacement
- Norepinephrine is first-line in septic shock.
- Dobutamine is first line inotrope in cardiogenic shock, however some will benefit from addition of norepinephrine or other vasopressor.

Overdoses

With reported minor overdoses other than opiates*, patients still get worked up as they may not be truthful regarding their overdose.

Order the following studies on every patient:

- Renal Panel
- VBG: to evaluate for metabolic acidosis (MUDPILES)
- EKG: look at the intervals; this is particularly important for TCA and anti-psychotic overdoses
- Acetaminophen level: because this is such a common drug and consequences of missing this overdose are severe
- Aspirin level: same as reasoning as for acetaminophen
- EtOH level (PES preference)
- UA +/- UDS (PES often insists)
- Urine pregnancy
- Patients will need to be on monitor, especially if agitated or somnolent
- Consider psychiatric hold (pink sheet) or medical hold if flight risk
- Contact Poison Control for even minor overdoses; their funding is based on usage and we want them to be available!

Consider checking:

- INR if the patient takes Coumadin
- FSBG if altered mental status
- Liver panel & INR for baseline if Acetaminophen overdose
- Serum osms if unsure of acute volatile alcohol ingestion

*reported opiate overdoses that respond to Narcan and are otherwise well appearing and improving appropriately do not need full workup. If there is suspicion or concern for coingestion, err on the side of

Poison Control: 558-5111

Common Toxins and Their Antidotes

Acetaminophen	→	N-Acetylcystine
Anticholinergic	→	Physostigmine
Beta Blocker	→	Glucagon, Insulin, calcium
Calcium Channel Blocker	→	Calcium, insulin
Cyanide	→	Hydroxycobalamin
Digoxin	→	Digoxin Immune Fab
Ethylene glycol, methanol	→	Fomepizole, Dialysis
Hydrofluoric Acid Burns	→	Calcium Gluconate (gel)
Iron	→	Deferoxamine
Isoniazid	→	Pyridoxine
Methemoglobinemia	→	Methylene Blue
NMS	→	Cooling, IV fluids, +bromocriptine, +dantrolene
Opioids	→	Naloxone
Organophosphates	→	Atropine, pralidoxime
Serotonin Syndrome	→	Cyproheptadine, cooling, +benzodiazepines
Sulfonylurea	→	Octreotide
Sympathomimetics	→	Benzodiazepines, +BP control

Hyperglycemia

1) Initial Evaluation:

- BMP, Mg+, CBC, VBG, serum ketones, serum osmoles, urinalysis
- identify source of hyperglycemia from history and exam

a) Simple Hyperglycemia:

- No lab derangements consistent with DKA or HHS
- Glucose $>250\text{mg/dl}$

b) DKA:

- Glucose $\geq 250\text{ mg/dl}$
- Serum/urine ketone +
- Bicarb ≤ 18 or
- $\text{pH} \leq 7.30$

c) HHS:

- Glucose $> 600\text{ mg/dL}$
- Serum Osm > 300
- Bicarb > 15
- $\text{pH} > 7.3$

2) Treatment:

a) Hyperglycemia:

- Hydrate with IV fluids +/- insulin to get pt's glucose under renal threshold of 300mg/dl

b) DKA & HHS:

- Aggressive hydration
- obtain K+ before starting insulin; replete before starting insulin if <3.5 to prevent life threatening hypokalemia.
- Insulin gtt @ 0.14u/kg/h (no bolus), add dextrose when glucose <250
- Monitor for hypokalemia, hypomagnesemia
- Admit to Step-down or ICU

c) New onset adult hyperglycemia:

- Treat as above
- Add A1C to lab eval to help triage inpatient vs outpatient (see tamingthesru.com for algorithm)
- Asymptomatic and other labs reassuring, start metformin 500mg qday and arrange follow up

see www.tamingthesru.com for full algorithm

Insulin Formulations

Type of Insulin	Examples	Onset of Action	Peak of Action	Duration of Action
Rapid-acting	Humalog (lispro)	15 minutes	30-90 minutes	3-5 hours
	Novolog (aspart)	15 minutes	40-50 minutes	3-5 hours
Short-acting (Regular)	Humalin R Novolin R	30-60 minutes	50-120 minutes	5-8 hours
Intermediate-acting (NPH)	Humulin N Novolin N	1-3 hours	8 hours	20 hours
	Humulin L Novolin L	1-2.5 hours	7-15 hours	18-24 hours
Intermediate- and short-acting mixtures	Humulin 70/30 Humalog Mix 75/25 Novolin 70/30 Novolog Mix 70/30	The onset, peak, and duration of action of these mixtures would reflect a composite of the intermediate and short- or rapid-acting components, with one peak of action.		
Long-acting	Ultralente	4-8 hours	8-12 hours	36 hours
	Lantus (glargine)	1 hour	none	24 hours

Acid/Base

Primary Abnormality:

- Acidemia: pH <7.35
- Alkalemia: pH >7.45

Primary Mechanism:

- Metabolic: pH and PaCO₂ change in SAME direction
- Respiratory: pH and PaCO₂ change in OPPOSITE directions

Compensation [respiratory in minutes, metabolic in days]

- Metabolic Acidosis:
 $\text{PaCO}_2 (\pm 2) = (1.5 \times \text{HCO}_3) + 8$ [Winters Formula]
- Metabolic Alkalosis:
 $\text{PaCO}_2 (\pm 5) = (0.7 \times \text{HCO}_3) + 20$ [not very accurate]
- Respiratory Acidosis:
 $\text{PaCO}_2 - 10 = \text{pH} - 0.08$ (Acute) or -0.03 (Chronic)
- Respiratory Alkalosis:
 $\text{PaCO}_2 + 10 = \text{pH} + 0.08$ (Acute) or $+0.03$ (Chronic)

Anion Gap [AG]

- Anion Gap Metabolic Acidosis:
 $\text{Na} - (\text{Cl} + \text{HCO}_3) > 16$

Mixed Disorders

- Delta Gap = $(\text{AG} - 12) - (25 - \text{HCO}_3)$ *calculate only if elevated AG
 - > +6: Concomitant Metabolic Alkalosis
 - < -6: Concomitant Non-Anion Gap Metabolic Acidosis
- Combined Metabolic + Respiratory Acidosis or Alkalosis
 - PaCO₂ and HCO₃ change in OPPOSITE directions
- Mixed Respiratory Acidosis and Metabolic Alkalosis
 - Normal pH but ↑PCO₂ and ↑HCO₃
- Mixed Respiratory Alkalosis and Metabolic Acidosis
 - Normal pH but ↓PCO₂ and ↓HCO₃

Acid/Base

Anion Gap Metabolic Acidosis - "CAT MUDPILES"

- | | |
|---|--|
| <ul style="list-style-type: none">• CO, cyanide• Aminoglycosides• Toluene (glue sniffing)• Methanol• Uremia• DKA, starvation/alcoholic ketosis | <ul style="list-style-type: none">• Paracetamol/Acetaminophen• Iron, Isoniazid• Lactic acidosis• Ethylene glycol, Ethanol• Lactic acidosis• Salicylates/ASA |
|---|--|

Non-Anion Gap Metabolic Acidosis - "USED CARP"

- | | |
|---|--|
| <ul style="list-style-type: none">• Ureteric diversion• Sigmoid Fistula• Excess Saline• Diarrhea• Carbonic Anhydrase Inhibitors | <ul style="list-style-type: none">• Addison's Disease• Renal Tubular Acidosis• Pancreatic fistula, Post-hypocapnia |
|---|--|

Metabolic Alkalosis

- | | |
|--|--|
| <ul style="list-style-type: none">• Vomiting• NG Suction• Contraction Alkalosis (Diuretics)• Hyperaldosteronism• Hypokalemia | <ul style="list-style-type: none">• Exogenous alkali• Steroids• Post-hypercapnia |
|--|--|

Respiratory Acidosis [Hypoventilation]

- | | |
|--|---|
| <ul style="list-style-type: none">• CNS Depression• Neuromuscular Disease (Myasthenia Gravis, Guillain-Barre)• Airway Obstruction• Asthma | <ul style="list-style-type: none">• COPD• Pneumothorax• Flail Chest• Respiratory Failure |
|--|---|




Respiratory Alkalosis [Hyperventilation]

- | | |
|--|--|
| <ul style="list-style-type: none">• Pain• Anxiety• Salicylates• Caffeine• Progesterone | <ul style="list-style-type: none">• Pregnancy• Pneumonia• Pulmonary Embolism• Hepatic Encephalopathy• Sepsis |
|--|--|

Electrolyte Disturbances

I. Hyperkalemia:

- Reference range = 3.5-5.3
 - Common Etiologies: Missed dialysis, intrinsic renal disease, medication-induced, acidosis, burns, rhabdomyolysis, adrenal insufficiency
 - Symptoms:
 - Mild: nonspecific (muscle weakness, paresthesias, N/V)
 - Moderate-Severe: EKG changes
 - Peaked T → wide QRS → loss of P wave → sine wave → v-fib/ asystole
- (*Also can see shortened QT, ST depression, prolonged PR)

Serum potassium	Typical ECG appearance
Mild (5.5-6.5 mEq/L)	
Moderate (6.5-8.0 mEq/L)	
Severe (>8.0 mEq/L)	

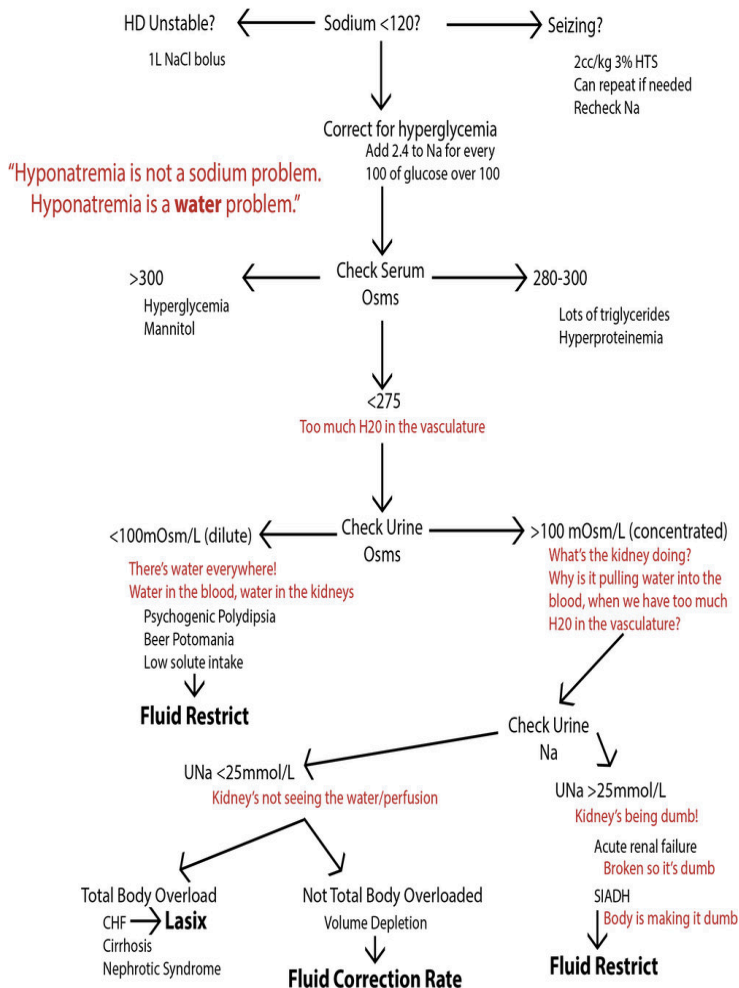
Hyperkalemia Treatment

Drug (mechanism)	Dose	Onset	K+ reduction	Duration
Ca Chloride Ca Gluconate (Membrane Stabilization)	1g IV 3g IV	Immediate	N/A	30-60min
Insulin+D50 Sodium Bicarb Albuterol (Redistribution)	10u+50g IV 50meQ IV (1 amp) 10mg/10min (neb)	20min 1hour 20min	~0.5 mmol/L	~2-6h ~2h ~2h
Hemodialysis Kayexalate Furosemide (Elimination)	15-30g PO 40mg IV	Immediate Varies Varies	Varies Inconsistent Inconsistent	3h Varies Varies

II. Hyponatremia:

- Reference range = 133-146
- Common Etiologies: Hyperglycemia (pseudohyponatremia), psychogenic/primary polydipsia, SIADH, vomiting and diarrhea, medication-induced, heart failure, cirrhosis, renal failure, adrenal insufficiency, hyperlipidemia/hyperproteinemia
- Symptoms: Nonspecific (malaise, N/V, muscle cramps) and neurologic (AMS, headache, lethargy, seizures, coma)

Hyponatremia Evaluation & Treatment



III. Hypernatremia:

- Reference range = 133-146

Common Etiologies:

1) Hypervolemic (sodium gain):

- Primary Hyperaldosteronism
- Cushing's Syndrome
- NaHCO₃ infusion
- Salt tablets

2) Euvolemia (water deficit):

- Diabetes Insipidus: central vs nephrogenic
- Diminished thirst perception
- Fever
- GI loss

3) Hypovolemia (hypotonic loss):

a) Extrarenal

- Vomiting and diarrhea
- Third space loss
- Burns

b) Renal

- Osmotic diuresis (mannitol, hyperglycemia)
- diuretics
- AKI/CKD
- Post-obstructive diuresis

Symptoms:

- Nonspecific (Anorexia, N/V) and neurologic (AMS, lethargy, coma, twitching, hyperreflexia, tremor, ataxia)

Workup:

- Obtain serum osm, urine osm, and urine electrolytes to help distinguish renal from extrarenal causes, especially if etiology is in doubt.

- o Urine osm < 300 – consider DI
- o Urine osm 300 – 600 – consider osmotic diuresis or DI
- o Urine osm > 600 – consider extrarenal water losses

Treatment:

- If unstable vitals, stabilize with isotonic fluids
- If stable vitals, consider cause of hypernatremia and institute appropriate treatment in conjunction with admitting colleagues
- Hypotonic infusions vs free water intake
- Do NOT correct faster than 0.5meq/hr in chronic or subacute and 1.0meq/hr in acute hypernatremia due to risk of cerebral edema from over rapid correction.

$$\text{Rate of infusion (mL/hr) to achieve 1meq/hr: } \{(TBW + 1) / ([Na] \text{ infused} - [Na] \text{ serum})\} \times 1000$$

$$TBW \text{ young male} = 0.6 * \text{Lean body mass (kg)}$$

$$TBW \text{ young female/elderly male} = 0.5 * \text{Lean body mass (kg)}$$

$$TBW \text{ elderly female} = 0.4 * \text{Lean body mass (kg)}$$

Common Infusions:

$$D5W - [Na] = 0 \text{ meq/L}$$

$$1/2NS - [Na] = 77 \text{ meq/L}$$

$$LR - [Na] = 130 \text{ meq/L}$$

$$\text{Normosol} - [Na] = 140 \text{ meq/L}$$

$$NS - [Na] = 154 \text{ meq/L}$$

Ultrasound

- Before a scan is performed, you will determine if this is a clinically indicated study or an educational study.
- A **clinically-indicated** ultrasound examination:
 - Is performed for medical decision making for that patient during their emergency department visit
 - Needs to be documented in QpathE and signed by the attending. When signed, the report and images will transfer to the patient's chart, under the Imaging tab.
 - The physician should discuss their examination as part of their medical decision making in the chart
- An **educational** ultrasound examination:
 - Is done for provider education only
 - Requires patient verbal consent and the patient should verbalize understanding that the exam is for education only
 - Must have a confirmatory study (CT, US, MRI) performed or ordered prior to the exam (see list on next page).*
 - Will be reviewed with the confirmatory study
 - Will have a completed worksheet in QpathE, but this information will not transfer to the patient's chart

1) Aorta

- Obtain a video while scanning **TRANSVERSELY** from the subxiphoid to umbilical area.
 - Can obtain still images and measurements from this clip
 - obtain 3 measurements of diameter from outer to outer wall (proximal, mid, distal aorta)
- Obtain a still image while scanning **LONGITUDINALLY** from the subxiphoid to aortic bifurcation.

Abdominal Aorta	<3cm
Common Iliac Arteries	< 1.85cm (males), <1.5cm (females)
Ascending Aorta	2.2-3.6 cm
Aortic Arch	2.2-3.6 cm
Descending Aorta	2.0-3.0 cm

2) Renal

- Obtain TRANSVERSE and LONGITUDINAL videos of each kidney
- If uncertain of hydronephrosis, add color to discern vasculature from dilation
- Obtain TRANSVERSE and LONGITUDINAL videos + still images of bladder, along with ureteral jets if visible

Bladder wall thickness – FULL	<4mm
Bladder wall thickness - EMPTY	<6mm
Kidney	9-12cm L x 2.5-3.5 cmT x 4-5cm W

3) Biliary

- Obtain TRANSVERSE and LONGITUDINAL videos + still images of gallbladder
- Gallbladder wall thickness and common bile duct diameter

Gallbladder wall (outside to outside)	<3 mm, 3-4 equivocal
CBD diameter (inside to inside)	< 5mm, +1 mm per decade over 50

4) Cardiac

indicator should be to patient's left in cardiac settings except for parasternal long

- Parasternal long – should include mitral and aortic valves
- Parasternal short – should include cross section papillary muscles and mitral and aortic valves
- Apical 4 chamber – should include all four chambers
- Subcostal – should include all four chambers, mitral and tricuspid valves
- IVC
- Parasternal long and subcostal are best for assessing for pericardial effusion

Pericardial effusion	<0.5cm – small 0.5-2.0cm – moderate >2.0cm - large
----------------------	--

5) Early pregnancy

- TRANSVERSE and LONGITUDINAL images of uterus
- If IUP, obtain video of fetal heart and calculate FHR with 2 beat peak-to-

peak

- Intrauterine pregnancy (IUP) = gestational sac + yolk sac
 - To confirm IUP, need to visualize uterus being contiguous with cervix/vaginal canal, with gestational sac inside uterus

6) FAST

- Cardiac (subcostal or parasternal) – include hepato-cardiac view
- RUQ – include view of hepato-diaphragm, hepato-renal and inferior tip of liver
- LUQ – include spleno-diaphragm, spleno-renal and inferior tip of spleen
- Pelvic – include recto-vesicular space and both transverse and longitudinal views

Ultrasound Guided Regional Anesthesia

I. Interscalene:

Indications for Interscalene Block:

- 1) Shoulder dislocation
 - 2) Large Deltoid Abscess
 - 3) Pain relief for proximal humerus fracture either with or without coaptation splint placement
- The interscalene block can, in theory, extend past the elbow, but not reliably so. Therefore, please select a different block for injuries beyond the elbow.

Strict Contraindications for Interscalene Block:

- 1) Inability to consent
- 2) Patient is already requiring supplemental oxygen
- 3) Patient is allergic to lidocaine or previously had LAST

Patient Dependent Contraindications for Interscalene Block:

- 1) Patient with COPD/asthma and severe disease
 - 2) Patient with CHF and low ejection fraction
 - 3) Patient on anticoagulation
 - 4) Patient with unreliable follow up
- The interscalene block, in particular, has a high incidence of phrenic nerve paralysis for the duration of the agent used. It should be considered an expectation and accounted for accordingly; similar to

those patient's with the propensity to have respiratory distress.

II. Femoral:

Indications for Femoral Block:

- 1) Anterior thigh laceration/abscess
- 2) hip/femoral shaft fracture
- 3) proximal tibia fracture
- 4) knee/patellar injury

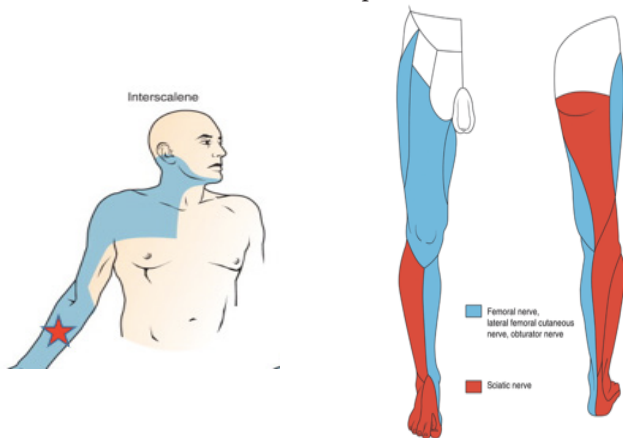
- The femoral nerve block does not reliably anesthetize past the proximal tibia

Strict Contraindications for Femoral Block:

- 1) Inability to consent
- 2) History of current or previous compartment syndrome
- 3) Patient is allergic to lidocaine or previously had LAST

Patient Dependent Contraindications for Femoral Block:

- 1) Patient cannot lie flat
- 2) Patient with current weakness or paresthesias
- 3) Patient on anticoagulation
- 4) Patient without reliable follow up
- 5) Patient without all soft compartments in affect extremity



Guidelines for Emergency Regional Anesthesia for Trauma Orthopedic Injuries

Block OK

- Shoulder dislocation
- Clavicle fracture
- Proximal humerus fracture
- Low energy distal radius fracture
- Hand and digit injuries
- Hip fracture and dislocation
- Low energy foot and ankle fractures

Contact orthopedic surgery as soon as possible for any patients to be admitted or patients who will require in ED consultation, but do not delay block placement.

Block after Consultation

- Humeral shaft fracture
- Elbow fracture
- Both bone forearm fracture
- Femoral shaft fracture

Perform and document detailed neurologic exam and consult with orthopedic service before block is placed.

No Block

High risk for compartment syndrome

- Tibial fracture
- High energy forearm fracture
- High Energy foot fracture
- Any injury with evidence of neurovascular injury or clinical concern for a possible compartment syndrome

Perform block only after requested by Trauma and Orthopedic service attending.

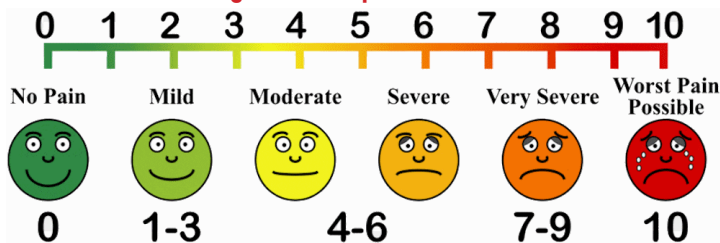
Universal precautions

- Appropriate splinting, protection, icing of any injured extremity.
- Appropriate analgesic administration.
- Block placement should not delay other time sensitive interventions.
- Appropriate consideration of and patient discussion of the risks and benefits of any block.
- Documentation of consent.
- Thorough, detailed, and appropriately documented neurologic exam before block is performed.
- Thorough, detailed, and appropriately documented compartment exam before block is performed.
- Safe and sterile procedural technique appropriately documented including but not limited to: pre-procedure timeout with confirmation correct patient, indication, and side; appropriate patient monitoring; use of real-time ultrasound-guidance with avoidance of needle to nerve contact and vascular puncture; aspiration and small volume (3-5mL) injection of appropriately dosed local anesthetic.
- Presence of necessary resuscitation equipment and intralipid in case of local anesthetic toxicity reaction.
- Clear marking of blocked extremity and documentation of block details in the medical record.
- Verbal communication of block details with participating clinical teams prior to discharge or transfer from ED.
- Appropriate post block care of weakened or insensate extremity to prevent falls and limb injury.

Common Medication Doses

Drug	ED Dosing	Prescription Dosing
Analgesia		
Tylenol	500mg-1g po	500mg q6 prn
Aspirin	324mg po	81mg qday
Ibuprofen	200-800mg po	800mg q8 prn
Tramadol	50-100mg po	50mg q6h prn
Toradol	15mg IM/IV	--
Ketamine	0.1mg/kg x3 OR 0.3mg/kg x1 IV	--
Narcotic		
Morphine	0.1mg/kg IV	--
Fentanyl	1mcg/kg IV	--
Hydromorphone	0.01mg/kg IM/IV	--
Oxycodone	5-10mg po	5-10mg q6h prn
Oxy/APAP (Percocet)	5/325 1-2tab po	5/325 1-2tab po q6h prn
Hydro/APAP (Norco/Vicodin)	10/325 1 tab	10/325 1 tab q6h prn
Anxiolysis/Sedative		
Midazolam	1-5mg IV	--
Lorazepam	1mg po 1mgIV	0.5mg BID prn
Antiemetic		
Ondansetron	4-8mg po/IM/IV	(ODT) 4mg q6hprn
Phenergan	12.5mgIV/25mgIM	25mg q6h prn
Compazine	10mg IV	--
Agitation/Delerium		
Ziprazodone	10-20mg IM	--
Haloperidol	5mg IM/IV	--
Olanzapine	5-10mg SL/IM	--

Analgesia and Opiate alternatives



- Attempt to address your patient's pain from the start and reassess often.

1) **Back pain:** mainstay is NSAIDs alternating with Tylenol, consider Flexeril or Valium, lidoderm patches, trigger point injection.

2) **Migraine:** Compazine/Reglan + Toradol +/- Benadryl.
Also can consider: IVF, IV Magnesium, IV Decadron, IV Haldol, Valproic Acid, Intranasal Lidocaine, Occipital nerve block, Triptans (avoid in pts with atherosclerosis/CAD), DHE (with neurology input)

3) **Chronic abdominal pain:** Tylenol, NSAIDs, Bentyl (with IBS-like symptoms), pain dose IV ketamine, gabapentin

4) **Renal Colic:** IV Toradol, IV Tylenol, opioids second line

5) **Dental pain:** AVOID narcotics! Instead, Tylenol + ibuprofen, dental blocks, topical lidocaine/benzocaine, dental box (calcium hydroxide paste, etc.)

6) **Acute Fractures:** not the time to avoid narcotics if hemodynamically stable and appropriate mental status. Also utilize pain dose ketamine if VS permit.

Antibiotics

	Source	Inpatient	Outpatient
Soft Tissue	Cellulitis 1) uncomplicated	Ancef 2g q8h or Vanc 15mg/kg	Cephalexin 500mg QID x5-10d + Bactrim DS 2 tab BID x5-10d (IF allergy: Clindamycin 450mg q8h x5-10d)
	2) DM/large area/ill/CDU/admit	Unasyn 3g or Zosyn (CrCl based) +/- Vanc 15mg/kg	--
	3) Nec Fasc/Fournier's	Clindamycin+Vanc+Zosyn	--
Pulmonary	Pneumonia (CAP)	1) Ceftriaxone 1-2g QD IV +Azithromycin 500mg QD IV or Doxycycline 100mg BID IV OR 2) Levofloxacin 750mg QD IV *add vanc or linezolid if MRSA RFs *add cefepime if Psuedo RFs	1) Azith 500mg x1d, 250mg QD x4d + Amoxicillin 1 g PO TID x 7d OR 2) Doxycycline 100mg q12h x7d OR 3) Levofloxacin 750mg QD x5d
	Pneumonia (HAP/VAP)	1) Vanc 15mg/kg IV + Cefepime 2g IV or zosyn (CrCl based) +Tobramycin 5-7mg/kg IV	--
	COPD Exacerbation	1) Azithomycin 500mg IVx1, 250mg QDx4d IV	Azith 500mg x1d,250mg QD x4d
	Orbital Cellulitis/ Pre-septal Cellulitis	1) Vancomycin 15mg/kg qd IV +Unasyn 3g q6h or Zosyn IV q8h or Ceftriaxone 2g qd IV	(Pre-septal only) 1)Augmentin 875mg po BID x10-14d + Bactrim DS x1 TID OR 2) Clindamycin 300mg po QID x10-14d
ENT	Pharyngitis	Bicillin 1.2million U IM x1 or Clindamycin 300-450mg po TID x14d or Amox 500mg PO BID x 10d (avoid azithro)	
	AOM	Amoxicillin 500mg po q12h or Augmentin 500mg po q12h	
	AOE	Ciprodex 3gtt q12h or Polysporin 5gtt q6h	

	Source	Inpatient	Outpatient
GU	Corneal Abrasion	Erythromycin Ophth q6h or Moxifloxacin 0.5% 2 gtt q2h (if contact user)	
	Pyelonephritis	Ceftriaxone 1g qd IV or Levofloxacin 750mg qd IV	
	Cervicitis	Ceftriaxone 250mg IMx1 + Azithromycin 1g po x1 +/- Metronidazole 2g po x1	
	PID	cefotetan 2g q12h IV + Doxycycline 100mg po BID	Ceftriaxone 250mg IM x1+Doxycycline 100mg po BID x 14d +/- Metronidazole 500mg po BID x14d
	Epididymitis	1) if < 35y - Doxycycline 100mg po BID x14d + Ceftriaxone 250mg IM x1 2) if >35y - Ciprofloxacin 500mg po BID x14d	
	UTI - (look for old cx sensitivities)	Cephalexin 500mg BID x7d or Nitrofurantoin 100mg po BID x7d or 1g ceftriaxone + [Bactrim 1 DS BID or Ciprofloxacin 500mg qd x5d (if not pregnant)]	
Abdominal	Diverticulitis	1) Zosyn IV (CrCl based) OR 2) Cipro 400mg IV q12 + Metronidazole 500mg IV q8	Metronidazole 500mg po q6h + Ciprofloxacin 750mg po q12h
	Appendicitis	1) Zosyn 4.5g IV q6h OR 2) Metronidazole 500mg q8h IV + Ciprofloxacin 400mg IV q12h	--
	Cholecystitis/ Cholangitis	Unasyn 3g IV q6h or Meropenem 500mg q8h	--
	SBP	Ceftriaxone 1g qd IV or Levofloxacin 750mg qd IV	--
Neuro	Meningitis	Vancomycin 20mg/kg IV + Ceftriaxone 2g IV +/- Acyclovir 10mg/kg if HSV concern +/- Amp 2g q6h IV if Listeria concern (>50yo)	--
Onc	Malignancy with SIRS	Cefepime 2g q8h IV or Zosyn (CrCl based) + Vanc if MRSA RFs	--

Droperidol: Use and Indications

Mechanism of action:

Droperidol is considered a first generation antipsychotic; a butyrophenone with primarily dopaminergic action as a D2 receptor antagonist

Most common indications for use/doses:

Nausea/vomiting (0.625-1.25mg IV)

Migraine (0.625-1.25mg IV)

Acute agitation (5-10mg IM)

Side effects to consider:

Extrapyramidal effects

Sedation

Hypotension

QTC prolongation

Use with caution in patients with:

Congested heart failure, bradycardia, cardiac hypertrophy

Electrolyte derangements such as hypokalemia/hypomagnesemia

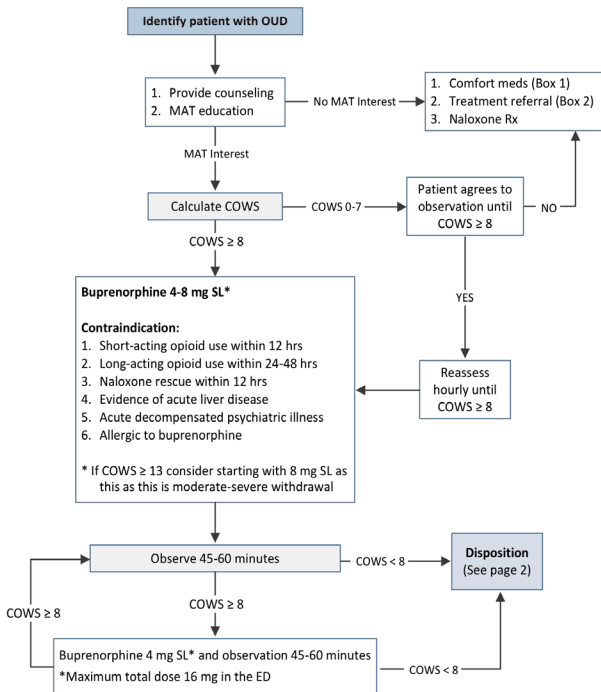
Use of other QT prolonging medications

Elderly; age >65

Alcohol abuse

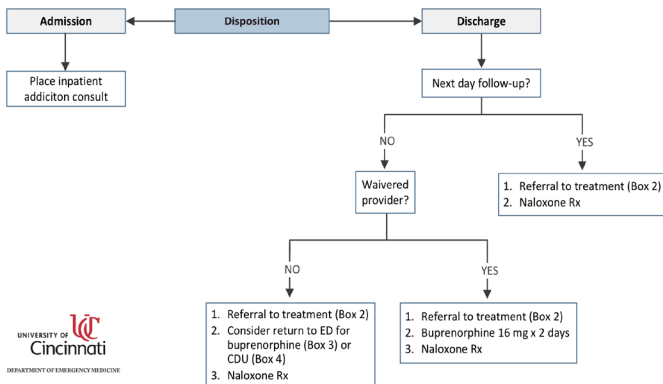
Medication Assisted Treatment (MAT) in Opioid Use Disorder

Medication Assisted Treatment (MAT) for Opioid Use Disorder (OUD)



Medication Assisted Treatment (MAT) in Opioid Use Disorder

DISPOSITION: MAT for OUD



Box 1: Comfort Medications*

Clonidine 0.1-0.2mg PO q8hr PRN (Hold for SBP <90) for restlessness
 Naproxen 500 mg PO Q12 PRN for Myalgia
 Ondansetron 4-8mg PO Q8hr PRN for Nausea

*The choice of medications for patients being discharged from the ED or other acute care settings must be considered for the risk/benefit profile of each individual.

Box 3: Return ED Visit for Re-dosing (72 hour rule)

1. Consider when unable to establish appointment within 24 hours of ED visit.
2. Consider for patients seen on Saturday, as no MAT providers can provide Sunday appointments.
3. Alternatively, can consider CDU admission (see Box 4)
4. Maximum total dose 16mg per day for non-waivered providers
5. Maximum of 3 total days of treatment PER PATIENT not PER PROVIDER

Box 4: CDU

1. See CDU protocol on [TamingTheSRU](#)
2. Consider CDU when unable to establish appointment within 24 hours of ED visit.
3. Consider CDU for patients seen on Saturday, as no MAT providers can provide Sunday appointments.

Box 2: Referral options*

* EIP can be called for risk-reduction counseling, linkage to care, and addiction services.

1. UC Addiction Sciences:

- A. Epic order of "Chem Dependency Amb Referral", which will generate a referral for the patient will be followed up by UC Addiction Services.
- B. UC Addiction Services is available Mon-Fri 7:30AM-9:00AM for walk in appointments at Suite 202, 3131 Harvey Avenue, Cincinnati, OH. Addiction services must be notified of appointment at 513-585-9722. Leave a message after hours.

2. If unable or unwilling to attend UC addiction sciences, other MAT providers below

- A. Brightview 24/7 hotline: patients call 513-834-7063, providers call 513-873-1218
- B. Talbert Engagement Center 24/7: Call 513-338-8738; Patient must provide discharge papers to Talbert with MAT administration time documented. WEEKENDS: Will require patient commitment to stay as inpatient until Monday morning. MAT will be provided until formal assessment.
- C. Center for Addiction Treatment: Call 513-381-6672

3. All referrals must be documented in Provider Note and Discharge Instructions

Notes

2020-2021 UCEM Call List

SUPPORT

Pharmacy ED Pharmacist 688-5479 ED Pharmacy 584-1680 Main Pharmacy 584-6337 On-Call 343-5412	Social Work ED SW 584-4201 Michelle 584-7758 Denise 584-7313 ODA 584-4514	Psych PES MD 584-7792 PSW Pager 230-2113 PSW Phone 584-8589	RT RT 688-5467 RT 688-5468	Radiology X-ray Tech 584-5845 CT Tech 584-1971 Main CT 584-0610 MRI Tech 584-1095 Echo/Vasc 584-5148 US OB 502-8694 Nuc Med 584-2287 Stress Lab 584-3057 READING ROOM: Main 584-2788 US 584-3893
Help Security 584-1111 Fire 584-3333 Epic Help 585-6972 EVS 584-4869 Needlestick 584-7849 Interpreter 855-448-4332 Brace Shop 421-5653	Lab ED Lab 584-1613 Main Lab 584-3700 Blood Bank 584-7888 Research EIP 584-0720 Research 688-5405 688-5406	Chiefs Hannah Hughes (760) 217-3781 Jess Koehler (586) 946-9660 James Li (770) 778-8885 Sim Mand (248) 824-9034 ucemchiefs@ucmail.uc.edu Overhead 3721 Bed Board 584-4740		

CONSULTS

ICU Fellows NSICU Fellow 688-5836 CVICU Fellow 688-5217 MICU Fellow 688-5655 DPIC 584-5111	TRAUMA 584-4444 OB EMERGENCY 584-4444 PEDS CODE 584-3333 CATH LAB 584-PAGE ASK TO ACTIVATE THE CATH LAB AND PAGE THE INTERVENTIONALIST ON CALL CCAT (ECMO) 515-1214 STROKE TEAM 844-7686	OBGYN Attending 325-0304 Chief (R4) 967-9187 L&D (R3) 967-8202 Triage (R2) 967-3024 ED (R2) 256-2434	Device Reps Medtronic 800-633-8766 Biotronik 800-547-0394 BostonScientific 800-227-3422
--	--	--	---

ED NUMBERS

A-Pod Attending 584-2636 R3 688-5033 R2 688-5032 HUC 584-8148 Nursing A1 688-5006 A2 688-5007 AF 688-5008 D1 688-5017 D2 688-5018 PCA 688-5319	B-Pod Attending 688-5013 R1 688-5031 R1 688-5035 R4 688-5034 HUC 584-8160 Nursing B1 688-5010 B2 688-5011 BF 688-5018 E *** PCA 688-5320	C-Pod Attending 688-5013 R1 688-5031 R1 688-5035 R4 688-5034 Nursing C1 688-5014 C2 688-5015 CF 688-5016 PCA 688-5320	I-Pod/CDU Attending 688-5317 Pit Doc 688-5009 I Pod APP 688-5021 I Pod Resident 688-5318 CDU APP 688-5372 Nursing I1 688-5019 I2 688-5020 PCA 688-5321	Charge & SRU Charge 688-5026 SRU 1 688-5022 SRU 2 688-5023 Medic 688-5024 AirCare Dispatch 584-2273
ED US 584-8469				