

Housestaff Survival Guide

2014-2015 Edition

Revised 6/13/14



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Disclaimer

This handout is meant as a guide, not a substitute for thinking and customizing care to individual patients. Rules and policies are subject to change.

Original version was by Chris Barber, MD and Angela Tang, MD in 1995-1996.

Revised: Ricky Mac, MD in 2000

Revised: Jason Green, MD in 2005

Revised: Brandee Grooms, MD in 2006

Revised: Derek Phan, MD in 2009

Revised: Nitin Bhasin, MD; Omar S. Darwish, DO; Howard Van Gelder, MD; Ana Uribe Wiechers, MD in 2010

Revised: Nhan Luu, MD; Visal Nga, DO; Joanna Tan, MD in 2011

Revised: Katrina Carli, MD, Serena Shi, MD, and Brian Rayhanabad, MD in 2012

Revised: Brian Rayhanabad, MD in 2013

Revised: Alan Cantillep, MD and Victoria Chung, MD in 2014

EXTENSIONS/PAGERS/ACCESS CODES

If you are dialing from the hospital phones you should dial the last four digits as listed. If you are calling from outside the hospital please dial 562-491-9xxx (replace the 3 with a 9). For extensions that start with a number other than 3 you must dial the operator at 562-491-9000 and ask to be connected.

Chief Residents

Alan Cantillep	p5209
Victoria Chung.....	p5426
Office	3132

Faculty

Chester Choi.....	3352
Bettina Kehrlé	2198
Neill Ramos	3351
Sarah Strube	2355

Med Ed Coordinators

Eliana Campbell – CME	2368
Jeffrey Power - GME	2356
Kel Miller.....	3140
Tracy Stribling	2351

Clinic

Clinic Front	3045
Clinic Back.....	2066, 2068

Floors

Rehab	3825
5 Bauer / Observation Unit	3819
6 Bauer	3833
6 Bauer Charting Area	3494
7 Bauer	3828

Intensive Care Unit

ICU Mod 1	3850
ICU Mod 4	3854
ICU Mod 5	3856
ICU Mod 6	3858

Pharmacy

Pharmacy.....	3765
7 Bauer Pharmacy	3777
6 Bauer Pharmacy	3776
ICU Pharmacy.....	3772
Atlantic Pharmacy.....	3799

Laboratory

Laboratory	3690
Pathology.....	3755
Microbiology.....	2702

Imaging

Attending Reading Room.....	3907-8
Rad/X-ray Tech	3900
Ultrasound	3919
CT.....	3909, 3907
Echo.....	3015
MRI	3783
Cardiac Cath.....	3375
Nuclear Medicine	3359

Other

ER.....	3944, 3090
Medical Records.....	4655, 3600
Case Management	3940
Housekeeping	3178
Maintenance	3185
Curtis (PACS)	3137, p462 0973
Debbie Silver (Wound Care).....	3818, p3854
Mindy Bellomy-Muth (Palliative Care)	3168
Respiratory Therapist	p7243

Access Codes

ICU Conference.....	1050
ICU Copy/Supply/Equipment Room	531
ICU Kitchen	5311
ER Back Door	5150
ER Lounge.....	3142
Radiology Conference Room.....	234/324

CARDIOLOGY FACULTY AND STAFF

Interventional Cardiologist	Clinic #	Pager #
Watson Desa, MD	562-594-6080	562-916-8804
Amar Kapoor, MD	562-491-9840	562-409-7471
Nikhil Kapoor, MD	562-491-9840	562-462-8662
Stanley Kawanishi, MD	562-426-3333 x43113	562-226-0315-voicemail
Minh Nguyen, MD	562-599-0981	562-212-1272
Henry VanGieson, MD	562-595-8671	
Konstantinos Vlachonassios, MD	562-622-9500	714-658-0376

Clinical Cardiologist	Clinic #	Pager #
James Jengo, MD	437-2801 x 2624	7243-2921
Brett Witter, MD	430-7533	

Electrophysiologist		Nurse Practitioner	
Marc Girsky, MD	213-748-7763	Soli Sao	p6361

Other numbers: Cath Lab-3375 (also access code); Echo-3015; Nuclear Stress Test-3498

PULMONARY/CRITICAL CARE FACULTY AND STAFF

Faculty		ICU Supervisors	Pager #
Nayyer Ali, MD	562-424-6040	Johnston, Shirley	2100
Jyoti S. Datta, MD	562-435-4473	Lucey, Maureen	2100
Irene P. Leech, MD	562-590-8509 x2156	Martinez, Susan	2100
Steven B. Leven, MD	562-933-8743	Scott, Kari	2100
Glenn F. Libby, MD	562-426-3333		
Michael O. Liff, MD	562-437-0996 x2621		
Teresita Saylor, MD	714-585-4021		
Arunpal Sehgal, MD	562-424-8000		
Maged A. Tanios, MD	562-424-8000		
		Respiratory Therapist	Pager #
		Audrey Kinney	9143
		Rene Bigalbal	9143
		Joe Javier	9143

Management Team		Pager #
Sharon Sauser/3920	Clinical Manager	5351
Bob Vomero	Dayshift supervisor	9188
Renee Allen	Nightshift supervisor	9188
JR DelRosario	Nightshift supervisor	9188

The Respiratory Care Staff and ICU Supervisors(562) 491-9016

Pulmonary Lab: 3915

Pulmonary Function Lab and Bronchoscopy (562) 491-9915

Anesthesia/Pain

Matthew Vo, MD	562-490-1018
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Endocrinology

Richard Berkson, MD	562-595-4718
Ricky Phong T. Mac, MD	562-595-4718

Gastroenterology | GI Suite: 3695

Timothy C. Simmons, MD	310-674-0144
Anoop K. Shah, MD	562-491-9823

Hematology/Oncology

Sassan Farjami, MD	562-590-0345
Andre K.D. Liem, MD	562-590-0345
Mark Ngo, MD	562-590-0345
Walter Schreiber, MD	562-590-0345
Simon Tchekmedyan, MD	562-590-0345
Lihong Wu, MD	562-590-0345
Nilesh Vora, MD	562-997-4070, 562-397-3991

Infectious Disease

Laurie A. Mortara, MD	562-595-7164
Lance T. Hirano, MD	562-595-7164
Chester Choi, MD	Office-3352
Stefan Schneider, MD	562-624-4943
Jerome De Vente, MD	562-624-4999 x4942
Marcia S. Alcouloumre, MD	562-624-4999, p562-683-3790
Emmanuelle Pardo, MD	562-624-4999

Nephrology | Hemodialysis: 3240

C. Calescibetta, MD	562-595-7426
Alan Erlbaum, MD	562-595-7426
John Hsieh, MD	562-595-7426
Essam Maasarani, MD	562-595-7426
Alice Park, MD	562-595-7426
Rajiv Dhamija, MD	562-595-7467

Neurology

William Hornstein, MD	562-591-1324
Panos Marmarelis, MD, PhD	562-591-1324
Ignacio M. Carrillo-Nunez, MD	562-591-1324

Ophthalmology

Audrey Mok, MD	562-436-4558
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Pathology

Linda K. Ando, MD	x3755
Andrew C. Burg, MD	x3755

Physical Med and Rehabilitation

H. Gulak, MD	491-9785
M. Rosario, DO	491-9785

Psychiatry

Harshad Shah, MD	310-867-3493
Branko S. Radisavljevic, MD	562-434-3030
Charles M. Carlstroem, MD	562-494-3633

Rheumatology

Nathaniel Neal, MD	562-989-2374
Geoffrey S. Dolan, MD	562-377-1111

Radiology | Attending: 3907-8

Gregory T. Vanley, MD	x3900
Ammar Istwani, MD	x3900
Patrick J. Cahill, MD	x3900
Bassam M. Zahlan, MD	x3900
William L. Bernstein, MD	x3900
Ann Marie T. Levan, MD	x3900
Vincent Esposito, MD	x3900

Radiology dictation line: 3911 and the prompt dial 9999 (user ID), 9999 (password), then 1 (review) and MR#. When listening to the report you can press 3 to rewind and 5 to hear previous reports

In PACs a yellow folder next to a study means a radiology attending has not read the study. Once the study has been read the folder will turn grey and you will be able to listen to the report by dialing 3911 as above.

For Dermatologist, Podiatrist or any other specialty go to <http://www.stmarymedicalcenter.org> and go to Find a Doctor; Urology: check w/ ER call panel

INTRODUCTION

Welcome to St. Mary Medical Center, the best academic experience in a community setting. You will benefit from “real world medicine” in a highly academic setting.

Keys To Survival

1. Don't panic!
2. Take care of your patients. You are finally using your education and training.
3. Be kind to the nurses and other ancillary staff. They make your life much better... or much worse.
4. Sleep when you can.
5. Remember to eat.
6. Wear comfortable shoes.
7. Call your significant other when on call.
8. Verify everything (labs, x-ray, EKG) yourself.
9. Ask questions and ask for help. You are not expected to know everything.
10. Call for consultations on your patients early in the day and have a specific question you want answered from the consultant. This is always appreciated.
11. Dictate discharge summaries the day the patient leaves.
12. Work hard, stay enthusiastic, and maintain interest.

Cross Coverage Commandments

1. When in doubt, ask for help!
2. Vitals are vital! Always check them and take them seriously when they're away.
3. Document, document, document!

Website

<http://stmarymed.com>

Schedules

<http://amion.com>

password: stmarymed

Cafeteria Hours

Breakfast: 6:30am-10:00am

Lunch: 11:00am-3:30pm

Dinner: 4:00pm-7:00pm

GME FACULTY, CHIEFS, AND MEDICAL EDUCATION STAFF

GME FACULTY

Chester Choi, MD MACP
Residency Program Director
Professor of Medicine

Bahman Chavoshan, MD
Assistant Program Director

Neill Ramos, MD
Academic Staff Physician
Director, Coumadin Clinic
Director, Ambulatory Teaching Clinics

Maged Tanios, MD
ICU Director

Nayer Ali, MD
Academic Hospitalist

Hripsime Gharibjanyan, MD
Academic Hospitalist

Bettina Kehrle, MD
Academic Staff Physician
Palliative Care Physician

Visal Nga, MD
Academic Hospitalist

Brian Rayhanabad, MD
Academic Staff Physician

Sarah Jean Strube, DO
Academic Staff Physician

CHIEF RESIDENTS

Alan Cantillep, MD
Chief Resident

Victoria Chung, MD
Chief Resident

MEDICAL EDUCATION STAFF

Eliana Campbell
Continuing Medical Education Coordinator

Kel Miller
Manager, Academic Affairs

Jeffrey Power
GME Residency and Student Coordinator

Tracy Stribling
Office Assistant, Medical Education

WARDS AND ICU STRUCTURE

A. Overview of Internship:

- a. R1s include preliminary track interns, categorical track interns, and 2 primary care track interns.
- b. Each intern will be doing 3-4 SMMC ward blocks. Schedule differences between the 3 tracks:
 - i. Preliminary: 4-5 ICU months
 - ii. Categorical: 3 ICU months & 1-2 Harbor medicine ward months
 - iii. Primary Care: 3 ICU months and 1 Harbor medicine ward month
- c. ER month. 7am-4pm; Weekends off with 1-3 Saturday nights covering ICU or wards night float.
- d. Selective month from the following selections – SMMC Radiology, SMMC Pulmonology, SMMC Cardiology, SMMC GI, SMMC Neurology. Weekends off with 1-3 Saturday nights covering ICU or wards night float.
- e. Medicine Clinic month(s) at the Family Clinic of Long Beach (FCLB). Weekends off with 1-3 Saturday nights covering ICU or wards night float.
- f. 1-2 months of Night Float, comprising of half blocks of ward and ICU night float. Saturday nights off.
- g. Back-up for interns who miss work because of illness/emergency leave on wards, ICU and night float (**please contact your back-up intern(s) in the following order and inform the chiefs; the final approval will be given by the chiefs**):
 - i. ER (back-up 1)
 - ii. Selective (back-up 2)
 - iii. Neurology (back-up 3)
 - iv. Continuity Clinic (back-up 4)

B. Overview of R2/R3 Year:

- a. R2s have 3 months of wards, typically have 2 months of ICU, 1 month of AMB-1, 1 month of continuity clinic, and typically 2 weeks of night float.
- b. R3 have 3 months of wards, typically have 1 month of ICU, 1 month of medicine clinic at FCLB, 1 month of AMB-2, 1 month of Geriatrics, 1 elective, and typically 4 weeks of night float.
- c. Back-up for residents who miss work due to illness/emergency leave on wards, ICU and night float (**please contact your back-up resident(s) in the following order and inform the chiefs; the final approval will be given by the Chief, and residents from other rotations may be selected to cover call at the Chief's discretion**):
 - i. Geriatrics (back-up 1)
 - ii. AM-1 (back-up 2)
 - iii. AM-2 (back-up 3)
 - iv. Continuity clinic (back-up 4)

1. WARDS STRUCTURE

- A. Four ward teams lettered A, B, C, and D. Each team will have 1 attending.
- B. Each team consists of 1 ward resident and 1 intern.
- C. On weekends, Teams A & C will round with one attending; Teams B & D will round with another attending.
- D. On the resident's day off, the intern will round with the attending.
- E. Each team will admit every 4 days and will have one day off per week.
- F. Days off can occur between Thursday and Sunday. Between these days: interns are off on their Pre-Call day, and residents are off on their Post-Post call day.
- G. On weekdays at 9am, wards residents round with case management in the 4th floor conference room
- H. Between Thursday and Sunday, pre-call residents are expected to pre-round with the intern on the post-post call team (for whom the resident is off). The resident who is off is expected to sign out his team to this resident to facilitate cross coverage.
- I. Night float interns take coverage from Sunday-Friday, 8:30pm to 7:00am.
- J. On Saturday nights, an intern from Clinic/Selective/ER will be the night float intern from 8:30am to 7:00am.
- K. The night float resident takes coverage from Sunday-Thursday, 7:30pm to 7:00am.
- L. On Friday and Saturday night, the ward resident on call will stay overnight and will admit with the night float intern.
- M. The day prior to starting the new ward rotation, interns and residents are expected to review patients' charts in order to be familiar with the patients on their new rotation.

I. When do I have to be in the hospital?

- A. **All residents & interns need to be in-house by 7:00am, weekdays & weekends.**
- B. Day interns should arrive earlier than 7:00am if they require more time to see their patients and obtain sign-out of overnight events from night float interns.
- C. On-call wards and post-call teams need to obtain sign-out at 7:00am from the night-float team. **Post-call team needs to receive sign-out as a team (NF Resident/Intern at a single table with Post Call Resident/Intern).**
- D. Night float intern should update the non-call day interns regarding major overnight updates in AM prior to leaving the hospital.

II. When can I leave?

During weekdays

- A. **Interns must sign-out to the intern on call and can do this no earlier than 4:00pm. Residents are expected to be present until 4:00pm to ensure all patients are tucked in.** Please take care of discharge summaries, medication reconciliation forms (to be completed with each admission and each discharge)
 - i. sign all orders within 48 hours

- ii. sign restraint orders (within 24 hours), foley orders, medication reconciliation form
- iii. sign charts in medical records - all records need to be completed within 14 days of discharge
- B. Residents must sign-out to the on-call resident any patients that are unstable or are expected to have problems, but are not required to sign out on a regular basis.
- C. **Interns need to contact the residents and have their approval before leaving.**

During weekends

Non-call teams can sign-out to the on-call team once progress notes have been written and the plan has been discussed with the attending, **provided that the plans for that day have been executed properly.**

Post overnight call

Following overnight call (24 hours), residents (PGY-2 and 3) may remain on duty for up to an additional 4 hours in order to further continuing care, ensure appropriate transfer of care and to attend educational conferences.

III. Sign-outs

- A. Located on Dignity Health server (\\smlb-nas-001b\depts\residents).
- B. The day intern is required to update sign-outs for new admissions and major issues for the night float intern to follow.
- C. The night float intern is required to update sign-outs for new admissions and major overnight updates.
- D. Day and night float interns are required to add the bounce back(s)/overflow(s) to the sign-out of the appropriate team, and to inform that team
- E. Interns should update residents with progress on days when the residents are off. Likewise, residents should update interns on their days off.

IV. When do I need to complete the progress notes?

- A. Interns and residents need to have their progress note completed and in the chart before rounds, which are typically around **9:00am**. Note that the plan does not have to be perfect. We want you to commit to an assessment/plan for the patient. This is the only way you are going to learn and this is the only way the attending can assess your thought process. Writing down what the attending tells you is not going to help you in the long run.
- B. For the intern, after completing your assessment/plan, you should go over your plan with your resident.
- C. You can type your note, but it needs to be updated daily and printed on St. Mary yellow progress note paper.

V. When do I stop taking admissions?

- A. Last admission for wards team during day-call **Mon-Fri is 4:59pm for patients who are not clinic or CARE patients.** On weekdays between 5pm-9pm, admissions for patients who are not clinic or CARE go to a hospitalist. **The last admission for day team for CARE or Family Clinic of Long Beach patients is 7:29pm every day. On weekends, the last admission for short call day team is 7:29 pm, for all patients.**
- B. Last admission for night-float team: **5:59am.** If ER calls NF resident between **6:00am-7:00am,** get the name of the patient/MR# and give it to the day-call team. **If the patient is critically ill, please assess the patient ASAP.**

VI. How many admissions can I take during call?

- A. INTERNS: can admit up to 5 new patients and have 2 ICU transfers during call. Any additional ICU transfers will be considered a new admission. However, when an intern reaches a total cap of 10 patients, he/she will no longer take admissions (10 total patients new and old). Patients who are discharged during the day (until 8:30pm) are not included in the total cap. For example, if an intern has 6 patients and none of them are being discharged during the call, the intern can only admit 4 new patients.
 - a. Post-call day, **regardless of admission cap,** the intern may pick up max 3 additional patients admitted by the night float team or resident during the day as long as total intern census is <10, and the **total number of new patients is <8 within 48 hours.** The 3 additional admits will only need a progress note because the H&P will have been done by night float or resident the day before. H&P completed by the NF team on patients arriving after midnight does not need a progress note, **although some attendings expect an addendum.**
 - b. On post post-call day, a resident can transfer his/her old patient(s) to the intern. See section IX.

- B. RESIDENTS: When on call, the individual resident cap for the day is 10 new patients plus 2 ICU transfers within 24 hours (or cap upon reaching the team limit of 14 total patients plus 1 admission to be given to the post-post call team). Any ICU transfers beyond the first 2 will be considered a new admission. The resident may pick up additional patients admitted by the night float team or resident during the day as long as their total census is <14 and total new patients <16 within 48 hours.
 - a. Once a cap has been reached, any more admissions will be given to the hospitalist on call unless the patient is a clinic patient.
 - i. Pre-call team is limited to **1 admission** (“overflow”), then...
 - ii. Post Post-call team is limited to **1 admission** (only for Clinic and Care clinic patients only).
 - iii. Once the post-post-call team has capped, **any more CARE Clinic or Family Clinic of Long Beach patients must still be admitted, and will go to the next on-call team.** That patient will count toward their admissions the following day.

- b. Each resident may continue to admit patients for the pre-call team/post post-call team, provided that the resident him/herself has not individually performed >10 new patients plus 2 ICU transfers. Activate the Jeopardy for further new admissions. **Please call the chief(s) prior to activating the Jeopardy, and if it appears that Jeopardy activation is imminent.**
- c. No resident (on a one intern team) can be responsible for the ongoing care of more than 14 patients.
- d. Once the intern caps, you cannot ask them to help you with admissions. They are done.
- e. Bounce-back: to assure the continuity of patient care, a patient who needs to be re-admitted after discharge is a bounce-back to the resident team that discharged the patient. Similarly, a patient who is transferred from ICU to wards is a bounce-back to the resident team that originally transferred the patient to the ICU.

***Special note on bounce-back admissions:** If you admit a patient that is a bounce-back to another team, please give the other team the bounce-back as their admission, not bounce-back plus 1 more new admission.

***Special note on distributing admissions:** Distribution of patients to different teams is to take place the following morning, during patient sign-out; therefore, the post-post/pre call team that is to receive the patients is the one on service that morning.

VII. What does it mean to be on Jeopardy Coverage?

A resident will be assigned as back-up for potential ward or ICU residents who may be ill or have a strong reason to miss their work on Friday or Saturday. Jeopardy call room is located on the 4th floor (Rm 417). In addition, if the hospitalist has been activated and the on-call resident has done 10 new patient admissions plus 2 ICU transfers, then the jeopardy resident can be called to admit CARE Clinic or FCLB clinic patients. The Jeopardy resident should be in-house within 1½ hours. **Please call the chief(s) prior to the activation of Jeopardy Coverage.** For back-up coverage on weekdays, see page 17.

VIII. Who writes my notes during my day-off?

- A. **INTERN OFF DAY-** The resident will write all the notes on intern/resident patients. This will happen 4 times per month.
- B. **RESIDENT OFF DAY-** When resident is off, the co-resident will write the off-resident's notes if necessary. For example, if Team A resident has 2 patients on his/her own that he/she is unable to transfer to the intern, then the co-resident (pre-call team) will have to write these 2 notes and assume their care in the interim. Resident should sign-out verbally or by email to the co-resident covering for them on all patients, so that they can perform pre-rounding adequately with interns. The co-resident is responsible for supervising the off-resident's intern. The co-resident is not responsible to see every off-resident's intern's patients unless there is an issue.

IX. Can residents transfer their patient to their intern?

Yes, residents can do so once the intern’s census drops below 10. This requires the resident to keep the intern updated on all patients on the service. This is a team by team decision. This can be done only on a post-post call day or later. It is highly recommended that residents transfer patients to interns prior to their day off; cross-covering residents should not write notes for interns when the intern census is <10.

X. Order of Admissions (Can Residents Choose which Patients to Follow?)

- A. **Yes, it is up to the resident’s discretion to assign patients to the intern.** Admissions can be assigned to the intern in the order in which they were called whenever possible for both ICU transfers and ward admissions/consults; For the night float admissions, the resident can also decide which patients can be given to the intern.
- B. During a pre-call or on-call day, a resident cannot take patients from the intern to reduce the number of potential admits for the resident.

XI. Who is the Attending?

- A. Check the insurance. The patient is likely GME unless the patient has an insurance that has a contracted hospitalist at St. Mary.

Insurance with Contracted Hospitalists

Accountable	Asian Community	Cal Pacific Physicians	Health Care Partners/Talbert	Memorial IPA	Preferred IPA
Affiliated	Associated Dignity Medical Group	Easy Choice/Pacific Health Care	Kaiser	Noble IPA	Quality Care IPA
Alamitos IPA	Brand New Day	Employee Health Systems	Karing Physicians	Preferred IPA	SMIPA
Angeles IPA	Brookshire IPA	Global Care	LA Care Prospect IPA	Primary Care Physicians	St. Peter Medical Group
Applecare	Caremore	Healthcare LA	Lakewood IPA	Pioneer	Universal Care

- B. Patients with CARE as PMD: If patient is PPO, Medicare, or straight Medi-Cal, then CARE is the primary attending. If patient is from HMO (including LA Care and Care 1st), specialists cannot be the primary, so GME is likely the primary, even if patient’s PMD is CARE.
- C. If there are any questions, contact the case manager.

XII. Writing Notes/Dictations

- A. Interns must hand-write the H&P and dictate the note. Residents are responsible for hand-writing an addendum H&P with their own physical exam.
- B. Residents are responsible for discharge summaries for the first 6 months. However, the intern must give a written discharge summary for the resident to dictate from within 48

hours. If the resident has already dictated a discharge summary, then the intern is NOT responsible for writing a discharge summary.

- C. ALL patients must have a discharge summary, including those that left AMA, were transferred to another facility, or were hospitalized for < 48 hours.
- D. **Off-service note:** when Interns change rotations, off-services notes need to be done for patients who have been on the service for more than 48hrs. Off service notes must be written or typed using the yellow progress notes in the same format as a discharge summary, to assist your colleagues when they have to do the transfer and/or discharge summaries.
- E. Transfer Summary: from the wards to the ICU
 - A hand-written note should be provided for patients who have been on the wards service for > 48 hours
 - A hand-written note AND a dictated note should be provided for patients who have been on the wards service for >1 week

XIII. Clinic Requirements

- A. Residents are required to attend ½ day of continuity clinic per week.
- B. Interns are required to attend ½ day of continuity clinic twice a month.
- C. Clinic days are assigned. Residents & interns are allowed to leave clinic only after approval by the Clinic Attending.

XIV. Education

- A. Afternoon Report: Monday/Tuesday/Wednesday/Friday (3-4pm). Each resident may be assigned a day during their 4 week block to present an interesting case during afternoon report.
- B. Noon conference at 12 pm every day. See monthly calendar on stmarymed.com.

ST. MARY DIDACTICS

	Mon	Tues	Wed	Thurs	Fri
12:00-1:00pm	Noon Conference	Noon Conference	Noon Conference	Cardiology Cath Conference	Noon Conference
3:00-4:00 PM	Afternoon Report	Afternoon Report	Afternoon Report		Afternoon Report

2. ICU STRUCTURE

- A. There are 2 ICU teams: alpha and beta
- B. Each team consists of 1 resident and 2 interns.

- C. Interns will be on day call every 4 days from 6:00am to 7.30pm.
- D. The resident will be on call *overnight* 4 times per month on a Tuesday or Friday.
- E. **The night float intern takes coverage Sunday-Friday, 7:30pm to 6:00am.**
- F. **On Saturday nights, an intern from ER/Selective/Clinic will be the night float intern from 7:30pm to 6:00am.**
- G. The day prior to starting the new ICU rotation, interns and residents are expected to review patients' charts. This will familiarize housestaff with the patients when they start the new rotation.

I. When do I have to be in the hospital?

- A. **All residents & interns need to be in-house by 6:00am, weekdays & weekends.**
- B. Interns should arrive earlier than 6am if they require more time to see their patients.
- C. On-call ICU and post-call teams need to obtain sign-out at 6:00am from the night-float team. **Post-call team needs to receive sign-out as a team.**
- D. **Overnight call residents in the ICU** must arrange to arrive at St.Mary by 5:00pm (at latest, preferably ~4:30) to begin call. If the resident is running late they **MUST** inform ICU teams about estimated arrival time.

II. When can I leave?

During weekdays

Residents and interns must be present until sign-out rounds are completed, **which begin at (latest) 5:00 pm on Monday, Wednesday, and Thursday and 4:00 pm on Tuesday and Friday** (when the ICU residents are overnight).

During weekends

- A. Post-Friday overnight call resident: You can leave once progress notes have been written and the plan has been discussed with the ICU attending over the phone **before 10am.**
- B. **Non-call residents/interns, including post-call intern can sign-out to the on-call team once progress notes have been written and the plan has been discussed with the ICU attending over the phone or in person, provided that all plans for that day have been executed properly.**

Post overnight call

Following overnight call (24 hours), residents (PGY 2 and 3) may remain on duty for up to further 4 hours in order to further continuing care and ensure appropriate transfer of care and to attend educational conferences

III. Sign-outs

- A. Located on Dignity Health server (\\smlb-nas-001b\depts\residents).
- B. If there is overflow, the intern should update the other interns' sign out.
- C. **Residents are to update the ICU attending prior to signing out - this includes day & night resident.**

- D. **Formal bedside sign-outs occur twice – at 5pm when ICU night resident comes in & at 8:30pm when ICU night intern comes in. All TEAM MEMBERS need to be present and rounds MUST BE at bedside.**
- E. Intern should sign-out to the on-call team if they have clinic that afternoon and their resident is post-call from an overnight shift. After clinic, the intern should return to get an update on their patients and answer any questions the on-call team has before leaving for the day.
- F. Resident should sign-out verbally or by email to the weekend resident covering for them. The weekend resident may have the responsibility of writing progress notes and needs to be familiar with the patients.
- G. Off-service note: when Interns change rotations, off-services notes must be written for patients who have been on the service for more than 48hrs. Off service notes must be written or typed using the yellow progress notes in the same format as a discharge summary (this will assist your colleagues when they have to write transfer summaries).
- H. Transfer summary: from the ICU to the ward (GME patients only)
 - A hand-written note should be provided for patients who have been in ICU for >48 hours.
 - A hand-written AND a dictated note should be provided for patient who have been in ICU for >1 week.

IV. When do I need to complete progress notes?

Progress notes need to be completed before rounds, which start at 9 am. Have progress notes in the chart before rounding. The plan does not have to be perfect but should be made in conjunction with the resident.

V. When do I stop taking admissions?

- A. Last admission for ICU day-call Resident: **4:29pm**. Between 4:30-5:00pm, the resident should get the name of the patient and give it to the ICU night call team at 5:00pm. ICU day-call residents need to judge the urgency of seeing patients arriving between these times.
- B. **Last admission for ICU day-call intern: 6:59pm**. Between 7:00-7:30pm, the ICU intern should get the name & MRN of the patient and give it to the ICU night intern. If more than 1 admission occurs at 6:59pm, the ICU intern will only take 1 and the other will be given to the **night-call intern who starts at 7:30pm**. Again, the resident needs to judge the urgency in seeing patients between these times.
- C. **Last admission for ICU night-call team: 5:29am, weekday or weekend**. However, if a patient is called between 5:30-6:00am, the ICU night resident should **assess and stabilize the patient** (orders but no H&P), until the ICU day call team arrives. Patients called between 5:30-6:00am are added to the service of the incoming day-call team.

VI. How many admissions can I take during a call?

- A. **Each day & night-call intern can admit 5 patients plus 2 IM ward transfer patients in a 24 hour period.** Any additional admission needs to be seen by the resident alone.
 - i. **If this admission cap has not been reached, the post day-call intern can receive patients from night-call for a total of 5 new patients within 48 hours.**
 - ii. The following 3 admissions will go to the co-intern.
 - iii. Any further admissions will go to the intern on the other team who is on call.
- B. A resident can admit up to 10 new patients plus 2 IM ward transfer patients in a 48 hour period. **However, a resident can keep only 10 new patients, and should give the remaining 2 to the other team.**

VII. What is the maximum number of patients I can have?

- A. MAX Number of patients per intern: 10
- B. MAX Number of patients per resident: 20 (rare!)
- C. Resident is responsible for redistributing patients within their own team.
- D. Residents may redistribute patients between teams provided it is approved by the ICU attending (note: ICU attendings encourage this).
- E. Residents should discuss with the ICU attending regarding signing off on private teaching intensivist's patients if the team's census is high (definition to be determined by the ICU attending)
- F. If maximum number of patients per resident is reached for both teams (20 per resident, 40 in total), please call teaching intensivist concerning the possibility of closing the ICU teaching service.

VIII. Dictations

- A. GME patients or Dr. Datta/Liff/Ali's personal patients require only one dictated note. This dictated note needs to be dictated as an H&P by the intern for the intensivist (Datta/Liff/Ali/Tanios/Farhat/Sehgal). In the chart, there needs to be 2 notes written, one H&P by the intern and a modified H&P with own exam by the resident.
- B. Patients of private physicians who request an intensivist require one note. The intern is responsible for dictating a consult note for the intensivist. The private physicians are responsible for the H&P.

IX. Transferring a patient to the floor

- A. Communication needs to occur between RESIDENT-to-RESIDENT and INTERN-to-INTERN for all transfers. The ICU resident should speak with the charge-nurse to see if a bed is available for transfer and communicate this to the ward team. If no bed is available, the accepting ward team STILL needs to add the patient to their sign-out list and see the patient as soon as possible. The patient will count toward the total ward team census for up to **48 hours**. If the patient remains in the ICU beyond 48 hours, then the patient will be taken off the original ward team's census and is given to the on-call team when ready for transfer. Each ICU transfer needs an accept note from an intern (or resident if intern capped) and an addendum from resident/night float.

- B. Name plates for GME patients need to be changed on transfer to reflect the GME attending's name instead of the Intensivist's name.
- C. Non-GME patients are not followed by housestaff when arriving on the floor! **Please be sure that the private physicians responsible for these patients have been contacted regarding the transfer.**
- D. If a patient was accepted to the floor by night float and decompensated during the night or before the primary team sees the patient, then that patient is assigned to the on-call ward team when ready for transfer (does not go back to the original team).

X. Clinic requirements

Interns are required to attend ½ day of continuity clinic twice a month.

XI. Education

ICU residents and interns are required to present at a pre-determined ICU afternoon report 1-2 times/month. In addition, residents and interns MUST complete examinations on the Society of Critical Care Medicine website (<http://www.mysccm.org>) during/prior to their ICU month. Noon Conference and PM report are mandatory (as patient safety permits).

EMERGENCY ROOM UP/DOWN-GRADES

I. Up-Grade to ICU

Occasionally the on-call ward team will be asked to see a patient that needs ICU care. If it is CLEAR to the resident that the patient needs to be upgraded, then the ward resident should speak with the ER physician and professionally communicate his/her concerns. If the ER physician agrees, then the ER secretary will call the ICU team for evaluation. It is NOT the on-call team's responsibility to make the phone call to the ICU team.

In situations where the need for an upgrade is not as clear, if the on-call ward team has already worked-up the patient and afterwards decides that the patient may need ICU care, then the ward resident must call the GME attending. If the attending is in agreement, then the ward resident must call the ICU team and have them evaluate. The ward team needs to write a note and dictate an H&P for the GME attending and the ICU team who evaluates needs to dictate a consultation note. Either the ICU intern or resident should dictate this consultation note.

If an upgraded patient is being transferred out within 48 hours, then the patient should go to the team that evaluated the patient in the ER. After 48 hours, the patient will be transferred to the ward team who is on call that day.

II. Down-Grade to WARDS

If the patient needs to be downgraded by the ICU on-call team, please apply similar rules as above. If the patient does not need ICU care, please discuss with ER physician. If this decision is made after a full work-up is complete, then the ICU resident must discuss the case with the on-call ICU attending.

Special Note: If the Ward attending specifically upgrades a patient to the ICU, any downgrade decisions must be discussed between the Intensivist and the Ward attending. **Do not downgrade patients that Ward attendings have upgraded without speaking to an attending first.**

CONSULTATION SERVICES, ER, AND OTHER ROTATIONS

I. Consultation services (cardiology, neurology, nephrology, pulmonary)

- 6 new consultations may be seen in a 24 hour period with a total service responsibility of 10 patients.

II. ER rotation

- 7am-3pm; Weekends off with 1-3 Saturday nights covering ICU or wards night float.
- Last patient for ER: 2pm
- Complete attendance form daily for each ER attending(s) that you have worked with during the day
- Must attend all daily conferences.
- Consider: Certain ER attendings do not appreciate residents beginning to evaluate a patient and then leaving for conference (with or without a sign-out). It may be prudent to stop seeing new patients within the last 30-45min prior to a Noon Conference or PM Report.

QUESTIONS REGARDING STRUCTURE OR CHANGE REQUESTS

Please call the chiefs AS EARLY AS POSSIBLE (particularly regarding illness/emergency leaves, schedule change request, etc) to assure activation of appropriate coverage in a timely fashion. All changes need approval of all Chiefs.

COVERAGE AT ST. MARY

*Sign outs should always take place intern-to-intern and resident-to-resident.

Non-Housestaff patients

As a courtesy, ward interns/residents address problems at night at the request of private attendings. This includes fall evaluations, unstable patients, and urgent or emergent issues. Housestaff should assist whenever needed, communicate with the attending, and document interventions.

Code Blue

The ward resident/intern on call, the cardiology team, and the ICU resident/intern on call are the only ones to run the codes on the floors. However if you are nearby the code, please go and see if they need help as you might be the only/first doctor on the scene. Once the ICU team and on call team arrive, leave so they can run the code properly.

The ICU team is the main team to run the code; too many doctors at a code results in confusion and chaos, and makes the room unbearably hot and noisy. If an MD running the code dismisses you, leave, even if you are the team on call. There are ways to help with codes without taking space in the room; interns and residents from the other call team can find information about the patient from the chart, call attendings, or call family members while their counterparts manage the code.

In the ICU, the ICU team is responsible for running the code. The ward team can assist but are not expected to run the codes. On overnight calls both night float and ICU teams on call should respond promptly to any code in the hospital.

Distress Coverage

What is Distress Coverage? This is a system of backup coverage for interns and residents whose absence is necessary due to extreme circumstances (typically illness or family emergency). For interns, the order of the backup is: (1) ER; (2) Selective; (3) Neurology; (4) Continuity clinic. For residents the order is: (1) Geriatrics; (2) AM-1; (3) AM-2; (4) Continuity clinic. (While distress coverage typically will follow the pattern set out above, final decisions regarding coverage are at the discretion of the Chief resident and may not adhere to this outline.)

How to call for distress? It is the responsibility of the resident and intern to call the chief resident as soon as they believe there is a need (or possible need) to activate back-up coverage.

The chief resident must be notified in person or by telephone. It will also facilitate the transition, if the resident and the intern can first contact the back-up resident(s) and intern(s) to finalize the replacement plan. A proper patient sign-out MUST be completed between the off-duty resident/intern and the back-up resident/intern.

Back-up residents and interns should be available by pager or cell phone during their non-ward and non-ICU months. Consider remaining close to the hospital. Back-up residents and interns need to return phone calls within 2 hours of the chief's call or they may be assigned the coverage by default.

Payback? The program cannot require that the absent resident or intern work extra shifts to "pay back" the backup resident upon returning to work. However, in good faith, the resident or intern should "payback" the backup person whenever possible. The chief residents should be informed of these arrangements in advance.

Duty Hours

Residents and interns are required to log duty hours in MyEvaluations.com. A default time log is in the system. Please be active and honest about logging duty hours - it is to protect housestaff and ensure compliance with ACGME regulations.

Rotation Evaluations

Residents and interns are to promptly complete rotation evaluations in MyEvaluations.com upon completion of each rotation. All evaluations by housestaff are anonymous. Feedback is important in order to make changes to the Residency Program, so please be honest in your evaluations.

Chief Resident Assignments

Please feel free to address any questions/concerns/comments with the Chief Residents. Our phone are always on and my pager is usually by us. Any time (day or night), please feel free to call us with any questions or concerns you may have.

Medical Students

How to handle medical students on the wards

- A third year medical student (MS III) or a fourth year sub-intern (Sub-I) may be assigned to a team during the rotation.
- An MS III works directly under the intern's supervision and the Sub-I works directly under the resident's supervision.
- Any patient followed by an MS III requires a modified HPI/progress note (vitals, PE, and A/P, documented by the intern in their note). MS III may hand-write discharge summaries but must be reviewed by the intern and resident before being dictated. **All dictations are to be done by the intern and not the medical students.**
- A Sub-I's H&P's and progress notes require a brief addendum only by the resident. A physical exam must be included in the Resident's addendum (an MD must examine the patient daily). Sub-I's should be asked to hand-write discharge summaries for educational purposes, but residents are ultimately responsible for dictation.
- All orders from MSIII or Sub-I need to be co-signed by the intern or resident before being placed in the chart.
- Students take call with the team and are assigned patients by the supervising resident.

Days off for medical students

- Students work 6 days a week with one day off—either on a Saturday or Sunday
- Students are not required to take over-night call but may do so if they wish
- When an MS III is off, the intern must write the daily progress notes
- When a Sub-I is off, the resident must write the daily progress notes

CLINIC

Clinic is an ACGME requirement. Residents and Interns are required to attend at least one half day of clinic a week.

- Residents: clinic is mandatory while on wards, specialty services (both at Harbor and at St. Mary's), and Ambulatory rotations. ICU, Elective (R3 only) and Night Float residents are excused from clinic.
- Interns: clinic is mandatory while on: Wards, Selective, ER, and ICU. Harbor and Night Float interns are excused.

Clinic Schedule

Clinic starts at 8:30 in the morning and 1:30 in the afternoon. Please arrive on time, as patients might be waiting for you. Also, please be aware that didactic sessions may be planned prior to clinic in the morning. Check with the Clinic Attending regarding the schedule of didactic sessions for the month. The didactic session would start at 8:00AM prior to clinic.

You can look up your clinic days at amion.com (password: stmarymed). It is your responsibility to look up your clinic schedule. If you are very busy in the wards or ICU, let the Clinic Attending and Chiefs know in advance. You are still required to attend, but the Clinic Attending *might* dismiss you early.

Repeated tardiness could be reflected in poorer evaluations for the rotation and your overall evaluation in the ACGME core competencies of Professionalism, Patient Care, and Systems-Based Practices. If scores are low enough, you could be placed on remediation or probation.

Clinic work flow

A. Patient Encounter

1. Review chart (~5 minutes max)
 - i. Previous orders
 - ii. Prior note, labs, studies, referrals, **telephone calls**, medication changes, ER visits since prior appointment, etc.
 - iii. Continuity resident
2. Patient encounter
 - i. HPI, ROS, exam
 - ii. Counseling (smoking, diet, disease education)
 - iii. Special (Well-woman exam, translation services, procedures, Pain-BPI/DIRE/Treatment Agreement)
 - iv. Studies in office (fingerstick glucose, UA, urine pregnancy, ECG, spirometry)
 - v. Treatments available (Insulin, I&D, breathing treatments, IM Abx, vaccines, other injections)
3. After patient encounter

- i. Prepare to present to attending
 - ii. Paperwork (**in order of priority**: orders, prescriptions, lab forms, referrals for procedures or consultants, progress note)
 - iii. Discuss case with attending
 - iv. See patient with attending (Note: it is highly recommended that orders and prescriptions be entered while seeing the patient in the room with the attending)
 - 4. After seeing patient with attending
 - i. Discharge patient
 - 1. Get orders done (including lab forms and authorization forms)
 - a. When ordering consults and imaging, please note the diagnosis/reason.
 - i. Do not use “rule out”
 - ii. May indicate symptoms (i.e. Biliary Colic)
 - b. Check Amion for continuity resident schedule for patient to follow up, notify front office MA’s of specific date.
 - 2. Complete prescriptions (or secure script for controlled substances)
 - ii. See next patient.
 - iii. Complete progress note **only if no** other patients are waiting to be seen.
- B. Other tasks (in order of priority)
 - 1. Return phone calls promptly
 - 2. Review prescription refill requests (renew appropriate medication refills and task actual ERx to clinic attending, being sure to add specific pharmacy name to task)
 - 3. Review other paperwork
 - i. Labs/studies – if abnormal findings, make sure patient has appropriate follow up. Discuss with attending if any questions.
 - ii. Consultation reports / communication from other Dr./specialist/therapy etc. – review and check if any change from current plan from last progress note
- C. Miscellaneous
 - 1. Assignment of patients to be seen
 - i. In order of priority: (1)assigned continuity resident (2)language preference (3)resident who saw patient previously
 - ii. It is the discretion of the clinic attending to re-assign patients depending on patient flow.
 - 2. Documentation
 - i. Document all discussions with the patient and examinations performed.
 - ii. Update medication list at each appointment.**
 - iii. Miscellaneous tips
 - 1. All diabetic patients need to have documentation of hypoglycemic episodes, foot examination, pertinent labs (microalbumin, HbA1C, LDL) & complications of DM - microvascular (nephropathy,

- neuropathy, retinopathy) or macrovascular (CAD). Obtain fingerstick BSR with each appointment.
 - 2. For CKD patients, write GFR and stage of CKD. For anemia patients, write if acute or chronic if any drop in Hct, and any specific etiology.
 - 3. Document counseling of diet and lifestyle modifications and counseling of smoking cessation.
3. Flags
- i. Top flag up: Patient in room waiting to be seen
 - ii. Top 2 flags up: Patient seen by resident
 - iii. Top 3 flags up: Patient seen by attending
 - iv. Bottom flag up (only): Nursing orders (vaccinations, EKG, breathing treatment, etc)
 - v. All flags down: Room is empty
4. Specialty Clinics
- i. Travel Medicine
 - 1. Check CDC website for location to where patient is travelling
 - 2. Review patient's immunization history
 - 3. Counsel regarding malaria prophylaxis and traveler's diarrhea
 - 4. Discuss with attending (usually Dr. Choi)
 - ii. Subspecialty Clinics
 - 1. Rheumatology (2nd Tuesday afternoon of the month)
 - a. Note: use Rheumatology progress note as guide
 - 2. Endocrine (2nd Thursday morning of the month)
 - 3. Pulmonary (3rd Thursday morning of the month)
 - iii. Anticoagulation Service (Coumadin Clinic)
 - 1. Patients seen by St. Mary's Clinical Pharmacists
 - 2. Patients are scheduled for Thursdays (usually AM only)
 - 3. If referring patient to Coumadin Clinic, specific form needs to be filled out completely with attached progress note, medication list, and recent labs (CBC, INR, etc).
 - 4. If referring patient from the hospital to Coumadin Clinic at FCLB, check with the patient's primary physician if they agree with sending the patient to Coumadin Clinic (some physicians want to manage the dosing themselves).
 - 5. If any questions, please ask Dr. Ramos.

Authorizations for: Consults or studies

1. Insurances accepted: Medicare (straight), Medi-Cal (straight), CareMore (Medicare managed care), CareFirst (Medi-Cal managed care), LA Care/Employee Health Systems (Medi-Cal managed care), Commercial insurance (St. Mary IPA/Lakewood IPA/Alamitos IPS and HealthCare Partners)

2. All consults/referrals, imaging studies, and other special testing require a form that needs to be completed

Continuity is essential

You need continuity of care for your assigned patients. **Schedule new patients you have seen with you. If your patient is to be seen in three months, do not write in the orders “follow up with Dr. ___” – look up your clinic date and place it in the orders (remember to put am or pm, otherwise the nurses will do it randomly.)**

If you plan to refer a new patient to clinic from the hospital following discharge, please check the patient’s insurance status. The case managers on the floor can help you with this. If patient’s insurance is accepted, call the clinic (x3045) and request an appointment for the patient on your clinic day or with the intern or resident who also is following the patient. Have the facesheet with the insurance information ready when you **call for the appointment (call the clinic personally to schedule the appointment)**. Finally, be sure that the discharge summary is completed fully and promptly.

Cross-cover

Clinic Interns are on night float for wards & possibly ICU on some Saturdays. See amion.com for call schedule.

SUBSPECIALTY ROTATIONS

For details regarding each subspecialty rotation’s curriculum, visit stmarymed.com under Residents Corner. Click on the respective location (Harbor-UCLA or St. Mary) of the rotation (password: resident). Subspecialty clinics are assigned – your presence is expected. Interns are on night-float for ICU & wards on some Saturdays. Residents take call for ICU & Jeopardy. See amion.com for call schedules – password: stmarymed.

STARTING AT HARBOR-UCLA

Please visit Jeffrey Power's office in the beginning of the year to start the process of getting set-up at Harbor-UCLA. Jeffrey Power will send an e-mail at the start of the year containing further instructions, and it is imperative that all forms and live scanning be done in a timely fashion, or you may not be able to start your rotation on time. **Make sure you get all your paperwork done and passwords activated before you start (otherwise you will not have access to anything).**

Before you start you will also need to go to the HUCLA hospital site and check in at the GME Office located on the 8th floor of the main hospital. For IMGs, make sure to bring a copy of your ECFMG certificate. They will give you papers to fill & direct you to an outside building where HR is, where you can obtain a badge. Afterwards you may need to return to the GME office for your parking permit and HUCLA survival guide. Then proceed to go to IT, located in the basement of the Main Hospital, for your username/passwords to access the electronic medical records.

Please ask the SMMC intern at Harbor-UCLA to give you a quick orientation of the team structure, checking process, medical records software, and patient sign-out on your day off prior starting. Be sure to obtain the name of your HUCLA resident and the location of AM pre-round location (usually 8AM, 5East nurse station)

Parking: 1st day –park at the visitor parking, you can then park at the Doctor's parking lot once you have a parking permit.

Passwords: To access affinity and radiology program you will need to get a password from IT Department in the basement (right in front of the stairs). You need your ID badge to get your password. You need the password to print progress notes, admission orders, or transfer orders. Make sure they give you the password the same day.

Meals: ID badge serves as your meal card.

Keys: 3 keys will be handed off from previous St. Mary's intern. LA25 is for bathrooms, utility rooms (for thoracentesis trays, LPs, etc.). CA29 is for the call room on the 8th floor. Smaller key (no number) opens the resident's lounge on the fifth floor.

Call Schedule/Team Assignments: It's probably best to contact the chief residents. They have their office on 5th floor right across from the stairs. Sometimes they have snacks and donuts there, too. Their number 310-222-2490.

Access Codes to Doors: ER—35280 (near ambulance bay) 12345 (near cafeteria) or 0911, 4WCCU—96321, 3WICU—74123

Fax machines: located on most floors

Dept of Medicine: located on 5th floor

COVERAGE AT HARBOR

- Sign out unstable, 3WICU, 6W ICU, RTU, ER and DNR to Ward call.
- PCU patients are signed out to cross cover intern.
- The intern covering will be listed on the whiteboard in the same column as your name under the appropriate date.
- 5EICU and CCU patients will be automatically covered by ward call and third call.
- If you are cross covering and have a problem ask your resident first. Next is ward call, then 3rd call.

Good Luck at Harbor!

HARBOR-UCLA DIDACTIC SCHEDULE

	Mon	Tues	Wed	Thurs	Fri
8:30 AM		Medicine Grand Rounds			
9:00 AM	Morning Report		Morning Report	Morning Report	Morning Report
9:30 AM		General Internal Medicine Lecture Series			
12:00	Resident Evidence-Based Medicine Lecture Series	Resident Journal Club	Pulm/Critical Care Grand Rounds	M&M Conference	Intern Report
12:00	Cardiology Grand Rounds		Primary Care Lecture Series		ID Grand Rounds
12:00			Tumor Board		
1:00 PM	Nephrology Grand Rounds				
1:30 PM			Med/Surg GI Conference	Pediatrics/Hematology Conference	Endocrine Grand Rounds
4:00 PM		Multidisciplinary Chest Conference			
4:30 PM			Cardiac Cath Conference		

AN INTRODUCTION TO WARDS AT HARBOR

(Written by Interns, for Interns)

Rui-Tao Zhang, SMMC

“My soul can find no staircase to Heaven unless it be through Earth’s loveliness.”

Michelangelo

On a typical day at Harbor...

1) Hopefully you’ve already received the requisite parking permit and ID badge the week before work starts (county-level bureaucracy). Check your schedule on Amion using “humc im” as the login. On your first day, do plan on arriving no later than 6:15AM. Locate the **night float resident** on the 5th floor lounge to receive signout. Note: this applies to patients who are on wards/xCU (monitored step-down units). Patients who are still in the ED and the ICU (but NOT the 5MICU), or who are DNI/DNR are collectively covered by the **ward call resident**. 5MICU pts are covered by the MICU team (you must, however, still round on these patients when the MICU team pages you).

2) Unforward your pager: go to usamobility.com and login with user id **harbor2** and password **humc123**. Then click on “primary accounts” and “manage devices” and finally “MSG carbon copy/forward”. You will “search” for your pager (3105014356) and then “view/modify”. Delete the cc number (3105011350 for night float) and your pager will be unforwarded.

3) To print the inpatient list, log onto the **Affinity-Live** application and click on “INPAT SUMMARY ASSESSMENT”. *NOTE: you may not have your own username/password as of yet as it takes more than a week to setup. In this instance, use the credentials from the previous intern(s).* The printer in the residents’ lounge is **ph015w12**; the print device is “fflive”. To print out all of the progress notes for the day, click on “INPATIENT PROGRESS NOTES – PT LIST”. Note that you need to place the printed notes in the chart AND create (aka copy) a new note in Affinity daily. The reasoning behind this evades me. To obtain labs and vitals, click on “PATIENT CHARTING”. Vitals should be displayed under the “VS/IO/WT” tab. Lab values are under the “results” tab. Electronic notes are listed under the “chart assessment” tab.

4) To view PACS images, click on the application “Synapse 363” and type in the username “dhshucla\rad” and password “rad”. *You will do this twice for unexplained reasons.* Click on “all patients” and search for the patient MRUN under “patient ID”.

5) Time to round on your patients. Expect to preround with your residents between 730-800AM, usually in the 5E charting area. Your patients may be in a number of different units on different floors. I recommend taking the stairs. Note that you will cover both ICU and WARDS (and xCU) patients. HOWEVER, the 5MICU is somewhat of a “semi-open” ICU situation wherein you will follow the patients there BUT they will be primarily managed by the MICU team (do not make changes without first talking to the fellow or the resident). You will be paged to round with them in the AM. 6ICU patients are covered by you ENTIRELY. Most wards patients are on 6W. PCU

(aka telemetry) patients are located throughout various floors, and are separated by discipline (their charts will be in the rooms and not in the general charting area).

6) Write orders as you would at SMMC. AMLs are written as **CHEM10 and CBC** (no need to add diff). Flag the order by folding them in a triangular pattern down the middle and then placing them in the appropriate order rack. TOs are okay but the nurses will ask for your Harbor ID.

7) You may choose to go to AM report and noon conference, if time and energy level permit. I was able to attend one noon conference over the course of four weeks.

8) Food is obtained from within the doctors' dining room on the first floor near the vending machines. It's not bad, really. Observe the posted hours.

9) Admitting, obtaining consults, and discharging will be treated in a later section.

10) Round with the attending. Rounding times are variable depending on whether it's a chief resident or a subspecialist. Expect to round at around 1-2PM.

11) Place your completed progress note in the **physical chart**. Usually a signature will suffice, but you may also choose to write in a few addenda. Also complete (aka copy) a note in Affinity. Do this by going into the "chart assessment" tab and clicking on the previous day's note (has "supervising attending"). Then click "copy" and expand the "INPATIENT SUMMARY SHEET". Right click on "Principal Diagnosis" and "add/edit additional text". Then click on "save as final". Note that your composite "patient list" is populated by the data that is entered here. Repeat this for all of your patients. You should click on "update pt assignment" after finishing with your notes.

12) Print out your patient list and sign out to the night float resident. Again, for pts in the 6ICU (not 5MICU), ER, or who are DNR/DNI, you must sign out to the ward call resident instead (pager 5018). The night float resident will usually be in the lounge by 5PM. The ward call resident will usually be somewhere else. Forward your pager as above and you're done! Note: on weekends, you may leave after 12PM. Simply print out your list, write your cell phone number atop the first page, and place it in the stack in the lounge. You still need to sign out appropriately to the ward call resident, but the night float resident will call you in the afternoon to receive signout.

ADMITTING A PATIENT:

The resident will give you the MRUN and a brief history. To add the patient to your patient list, go to Affinity and click on the "find patient by" radio button under the "patient list" tab and search by name or MRUN. Click on "< Add" to add to your list. Now go see the patient in the ED. Grab a few of the H&P forms from the ED charting room, and find the patient. The "A" patients are in the main ED and the outlying rooms. Other patients will either be in the seating

area or on a gurney in the hallway. Ask the RNs if you are unsure about the location. Print out admissions orders by going into Affinity and expanding the “pre-printed forms” section. Go to “medical” and select “ADMIT WARD/PCU/SDU” for wards and telemetry patients, or “CRITICAL CARE ADMISSIONS ORDERS” for ICU patients. Fill out and review with your resident, then hand it to the ED clerk. Note: write all orders to be done in the ED on the **ED ORDERS** sheet and not on the **supplemental prescriber’s** orders sheet (you will be scolded otherwise). Go in to Affinity and “record” a new H&P therein in the same manner that you would copy the progress note for a pre-existing patient.

OBTAINING CONSULTS:

Depending on the service involved, you will usually page and speak with the respective fellow first and then fill out the consult form. The medicine-related services consult dropbox is located in the charting area of 5E. Surgical consults go to the 3W ICU dropboxes. The dropboxes for various other services are located elsewhere, and their specific locations are listed in the residents’ handbook (Anesthesia/Pain is notably in the office in the 2nd floor OR). The fellow will then use the form you’d just dropped off to write the consult note and drop it off in the chart. Note: read the consult instructions the dropbox carefully to determine if you will need to contact the fellow/resident before dropping off the form.

TRANSFERRING A PATIENT:

To transfer between wards and PCU or to downgrade from the ICU, use the “inter-unit transfer ward/pcu/sdu” order set found in Affinity. To upgrade to the ICU, use the “critical care inter-unit transfer orders” order set. Make sure there is a bed first by contacting the house supervisor.

DISCHARGING A PATIENT:

An involved process. You will first complete the physicians’ discharge summary (remember to save the red copy for the resident so that he/she can dictate the discharge summary) and place it in the chart. Next, you will enter and print out the Rx from within Affinity by clicking on the “link to CW” icon. The resident will explain the steps needed enter in discharge Rx. Print to **ph015ens** in the 5E charting area (the only reliable Rx printer). Get the Rx signed and add both the Rx and the patient Rx sheets to the chart. Note: if it is after 5PM, you will need to bring the Rx to the outpatient pharmacy on the first floor. Next, you will schedule the patient for outpatient follow-up appointments. In general, if the patient does not have prior follow-up, schedule them first for a **discharge clinic** appointment with a medicine resident. Then schedule for a longitudinal follow-up appointment in the medicine clinic. Your resident will set these up and you will then add them to the chart. If indicated, you will then need to contact the respective fellows to obtain approval for subspecialty clinic appointments. Do this by paging the fellow and confirming the appointment, then physically find him/her in order to have the green clinic form signed. Add this to the chart. If the patient requires durable medical equipment (DME), obtain a DME form and drop it off with Frank in the first floor social work office. Finally, ensure that your patient has transportation and write your DC orders in the chart.

ORDERING IMAGING STUDIES:

All imaging orders with the exception of plain radiographs need to be in the **chart and in Affinity**. Go to the “chart assessment” tab and then click on “record”. You may need to bring the patients to the tests yourself (40% likelihood).

CT/MRI: Expand the CT or MRI options and fill out the appropriate sections. Be thorough. IV contrast needs to be consented for and added to the chart. Note: PRINT out the Affinity orders to the respective printers (e.g. for CT print to CTBASEMENT).

2D echo: The procedure for obtaining a 2D echo is similar. This is a “heart station echocardiogram request”. Print to HEART.

Ultrasound: Ordering an ultrasound requires approval by the radiology resident or attending. Call 2831 and then go to the ultrasonography office in the basement to get the blue form signed (PLACE IT IN THE CHART, otherwise they will reject the u/s), then fill out the UTZ order set in Affinity. Ultrasound-guided FNA biopsy requests must include the cytology form as well.

Nuclear medicine: Order nuclear medicine studies in a similar fashion but with the **gold requisition form** and by calling 2842.

Interventional services: For interventional services, go the rads reading room on the 2nd floor and speak with a resident or attending therein to obtain approval.

ORDERING ANTIBIOTICS:

Orders for certain antibiotics and other agents (e.g. vancomycin, ciprofloxacin, linezolid, antifungals) require approval by the ID fellow or attending. Page 7804 and be prepared to defend your reasoning. Once approved, write the order in the chart. Note: vancomycin trough level monitoring and adjustment needs to be done manually. Ask the resident for further instructions.

CHEST PAIN

Goal: Make your patient chest pain free and rule out serious causes of chest pain. You will almost always want to evaluate the patient in person.

Urgent DDX

Ischemia, PE, aortic dissection, musculoskeletal, pericarditis, pneumothorax, pneumonia, esophageal tear

Less urgent DDXs

Esophageal reflux/spasm, anxiety

Call your resident (if you are worried about...)

MI, aortic dissection, PE, pneumothorax

What to order

- CXR: STAT portable
- ABG: if respiratory distress or low saturation
- Review telemetry event and obtain EKG (MI, arrhythmia, PE, ischemia)
- Others: serial cardiac Q12h x 2 (CPK, CK-MB, troponins), CBC, D-dimer
- LE U/S, V/Q scan, CT angio of chest (PE or aortic dissection), 2-D echo (STAT if worried about cardiac tamponade); TEE (if aortic dissection, but not stable enough for CT)

Unless you have another obvious cause for the CP, generally assume it's ischemic and proceed with the following:

1. On the phone:
 - Obtain the vital signs
 - Tell the nurse to call for a stat EKG
2. Ask the patient about the chest pain
 - Duration, quality, SOB/N/V/diaphoresis, activity when pain started
3. Quick physical exam
 - Heart, lungs, JVD, overall patient appearance
4. Give NTG 0.4 mg SL q5min until...
 - Pain resolves
 - SBP drops below about 90
 - 3 NTG SL are given
5. Give O2 to keep pulse ox > 93%
6. STAT labs: CBC, chem-7, Mg, Phos, cardiac enzymes
7. STAT EKG: Compare old EKG to new EKG for any changes
 - T wave inversion, ST depression, pseudonormalization of a previous abnormality

- ST elevations are much more specific for acute MI—consider TPA, emergent cath, cards consult
7. Consider a trial of Mylanta or GI cocktail if GERD is a possibility
 8. If NTG doesn't relieve CP and you still think it could be cardiac
 - consider NTG drip: 50 mg in 250 cc D5W, titrate to SBP > 90 < 130 and to CP
 - Start O2
 - Transfer to ICU
 - Give ASA 325mg
 - Try Morphine Sulfate 2-4 mg IVP (may drop bp)
 - Consider Heparin
 - Consider beta-blockers
 - Consider cardiology consult, especially if pain is ongoing
 - Consider getting serial EKGs q30min or so to see if new changes are evolving
 9. When CP is relieved, obtain another EKG
 10. Write a brief cross coverage note, including time called for CP, brief description of the pain, vital signs, significant exam findings, EKG changes, action taken, and duration of CP

****Worry more when pt has known CAD, there are EKG changes, or there are changes in vital signs.**

Management (for other causes)

- For **angina**: NTG SL 0.4 mg x 3 q15min or transdermal NTG; consider Morphine, beta-blockers, Heparin, or antiplatelet agents; if continues to have chest pain after NTG SL, consider starting NTG drip
- For **aortic dissection**: ICU transfer; Nitroprusside or Labetalol for BP control; CT surgery consult
- For **PE**: 100% O2; start LMWH or UFH
- For **pneumothorax**: immediate needle decompression (in the 2nd intercostal space in the midclavicular lie) then chest tube for tension pneumothorax; place pt on 100% O2; for >20% pneumothoraces, call surgery consult for chest tube placement; for small pneumothoraces, repeat CXR in 12 hrs to reevaluate
- For **GI**: antacids (Maalox, Famotidine, Prilosec, etc); elevate head of bed

CHEST PAIN ALGORITHM

1. Perform focused history and physical exam for complaint of chest pain. Initiate MONA (morphine, oxygen, nitrates, and aspirin, if patient has no contraindications to these medicines) for ACS patients.

2. Is the chest pain typical, atypical, or non-anginal?

Consider the following 3 criteria:

- substernal chest discomfort with characteristic quality and duration
- provoked by exertion or emotional stress
- relieved by rest or nitroglycerin

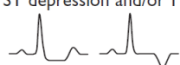

Typical chest pain fulfills all 3 of the criteria

Atypical chest pain fulfills 2 of the 3 criteria

Non-anginal chest pain fulfills 1 or 0 of the criteria

3. Order laboratory tests: EKG, troponins, CKMB, chest x-ray, Chem 7, Mg, Phos, FLP, HgA1C, 2-D Echo

4. For patients with presumed ischemic chest pain/acute coronary syndrome, further stratify to STEMI, NSTEMI, or Unstable Angina. + Troponin for NSTEMI is when troponin is greater than 99% of normal (approximately 0.028).

Spectrum of Acute Coronary Syndromes			
Dx	UA	NSTEMI	STEMI
Coronary thrombosis	Subtotal		Total
History	angina that is new-onset, crescendo, or at rest; usually <30 min		angina at rest usually ≥30 min
EKG	± ST depression and/or TWI		ST elevations
			
Troponin/CK-MB	⊖	⊕	⊕ ⊕

5. Calculate TIMI score for patients with NSTEMI/Unstable Angina.

Each of the following criteria is worth 1 point when present.

Age ≥ 65
Presence of at least 3 risk factors for CHD: 1)HTN, 2)DM, 3)Hyperlipidemia, 4)Smoker, 5)+ FH of early MI
Prior coronary stenosis of ≥ 50%
Elevated serum cardiac biomarkers
Presence of ST segment deviation on admitting ECG
At least 2 anginal episodes in prior 24 hours
Use of aspirin in the last 7 days

Patients are considered to be **at low risk with a score of 0 to 2; intermediate risk with a score of 3 to 4; and high risk with a score of 5 to 7.**

6. Patients with Low TIMI Risk Score (0-2) should be started on initial therapy with aspirin, beta-blocker, nitrates, and statin. Consider LMWH or UFH and stress test prior to discharge. Patients **with Intermediate TIMI Risk Score (3-4) or High TIMI Risk Score (5-7) should be started on initial therapy with aspirin, beta-blocker, nitrates, statin, and LMWH or UFH.** Indications to start GP IIb/IIIa inhibitor include: ongoing chest pain, dynamic EKG changes, elevated troponin, heart failure, and DM. Consult a cardiologist prior to starting a GP IIb/IIIa inhibitor. Consider clopidogrel and early coronary angiography.

7. Risk stratify patient using patient’s age, gender, and type of chest pain (typical, atypical, vs. non-anginal) to determine pretest likelihood of coronary artery disease in symptomatic patients
 Pretest probability of coronary heart disease (CHD) in patients with chest pain according to age, gender, and symptoms

Age	Non-anginal pain		Atypical angina		Typical angina	
	Men	Women	Men	Women	Men	Women
30 to 39	4	2	34	12	76	26
40 to 49	13	3	51	22	87	55
50 to 59	20	7	65	31	93	73
60 to 69	27	14	72	51	94	86

The probability values are expressed as the percent of patients with significant coronary artery disease on angiography. Combined data from Diamond GA, Forrester JS. *N Engl J Med* 1979; 300:1350; and from Weiner DA, Ryan TJ, McCabe CH, et al. *N Engl J Med* 1979; 301:230.

Stress exercise or pharmacologic testing yields greater results for the intermediate probability test group patient (25-75%).

8. How to decide which further diagnostic tests to order when ruling out a patient for ACS?

Exercise or pharmacologic stress echo testing vs. P-MIBI are the most commonly utilized tests at St. Mary.

If your patient is able to exercise, exercise stress echo testing is an excellent option. Always choose exercise stress testing if your patient is capable of exercising as it is more physiologic and therefore preferred.

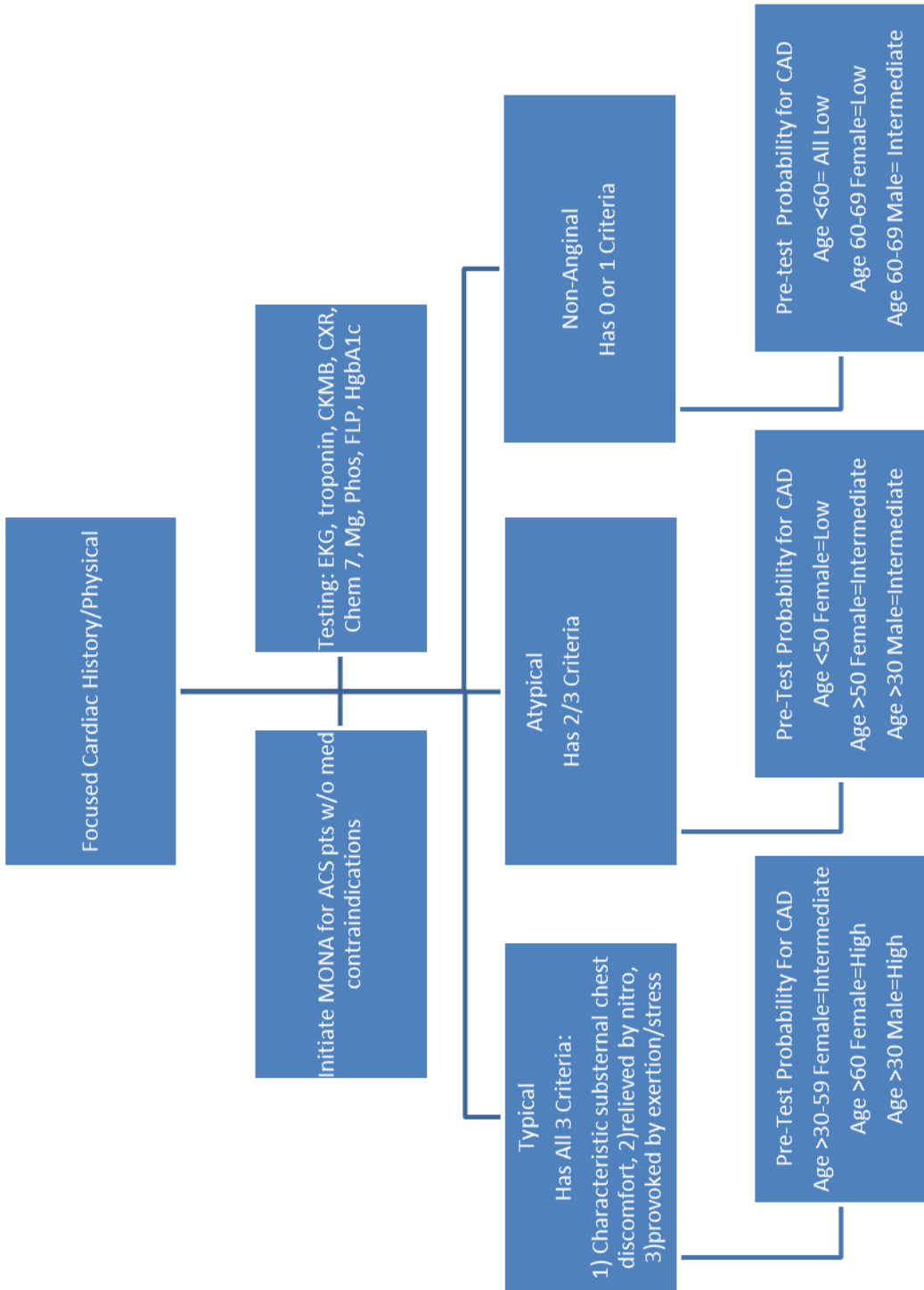
Dobutamine stress echo testing is another modality. Dobutamine stress echo testing can be utilized for a majority of patients and those patients who have contraindications to taking vasodilator medications, patients who are currently taking theophylline, and who have consumed caffeine prior to testing. Contraindications to testing with dobutamine: severe hypertension, aortic dissection, ventricular arrhythmias, recent MI within past 3 days, and hemodynamically significant LVOT obstruction.

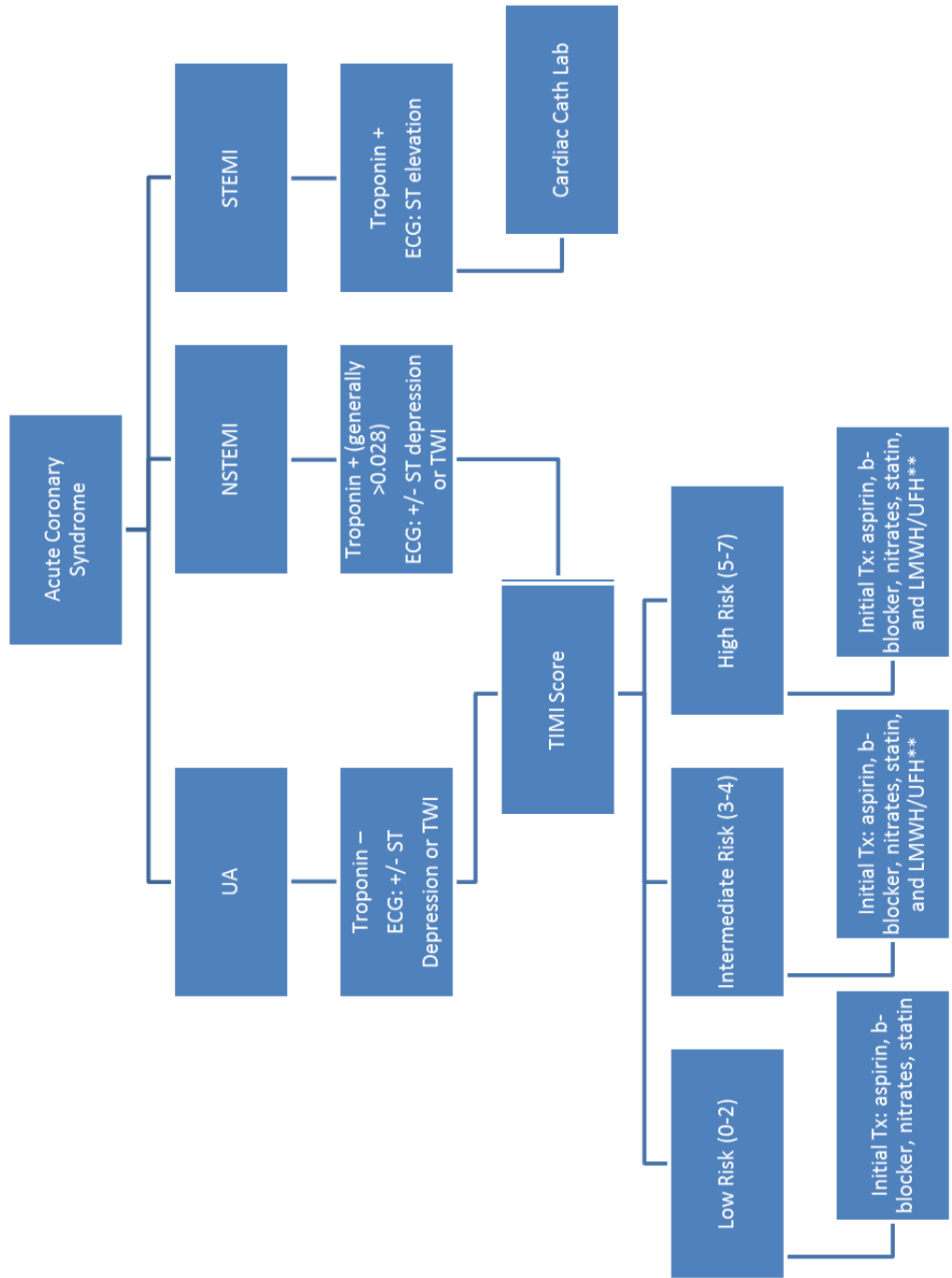
Pharmacologic stress testing can also be done using vasodilators such as Persantine-MIBI. P-MIBI testing can be used for patients who have bundle branch block or patients who have had CABG. For P-MIBI testing, theophylline medication must be withheld for 48 hours prior to testing and no caffeine for 24 hours prior to testing. Contraindications for P-MIBI testing include: bronchospastic airway disease (e.g. COPD or asthma patients with active wheezing), hypotension, sick sinus syndrome, and high degree AV block.

Please note the following precautions for administration of medications to patients presenting with chest pain.

- Patients who cannot tolerate aspirin, should be given clopidogrel (i.e. Plavix) instead.
- Patients who have taken a phosphodiesterase inhibitor such as sildenafil in the prior 24 hours should not be given nitrates.
- Patients who present with acute heart failure, bronchospastic airway disease, advanced heart block, or bradycardia should not be started on a beta-blocker. Calcium channel blockers such as diltiazem or verapamil may be given instead.
- Patients who cannot tolerate an ace-inhibitor should be given an angiotensin receptor blocker medication instead.
- Patients who present with liver disease with AST/ALT greater than 3X upper limit of normal or rhabdomyolysis should not be started on a statin.

Disclaimer: Note the above chest pain algorithm are guidelines. Each patient is unique and clinical judgment must be made upon the patient's presentation. Discuss the case with a cardiologist for further individualized advice.





**Consider clopidogrel and early coronary angio.
 Indications to start GP IIb/IIIa inhibitor include: ongoing chest pain, dynamic ECG changes, heart failure and DM.
 Consult a cardiologist prior to starting a GP IIb/IIIa inhibitor.

TACHYCARDIA

Obtain over the phone:

Vital signs, temperature, mental status, complaints (chest pain, or SOB, etc.), cardiac rhythms if patient is on telemetry, order a STAT EKG

See patient immediately if with chest pain, SOB, or hypotension

Sinus tachycardia

- Usually a physiologic response to stress
- In most cases, it is compensatory and necessary; do not take it away treat the underlying condition
- Pain, anxiety, fever, hyperthyroidism, volume depletion, hypotension
- If hypotensive, see Hypotension section
- If pt has known coronary disease, you may want to slow the rate down with a beta blocker, provided there are no contraindications.

Non-sinus tachycardia

- Clues: irregular, no P waves, too many P waves (per QRS), too few P waves, P waves
- Not temporally related to QRS, abnormal (upside down) P waves
- Obtain EKG STAT to better clarify type of tachycardia
- If hypotensive or V-tach, go to ACLS protocol
- If not hypotensive, consider cause and need to slow down HR or not
 - electrolytes (incl. Mg, Ca), oxygenation, ischemia, structural heart disease
 - medication effect (cocaine, pressors, theophylline...)

Labs to order

STAT EKG; consider cardiac enzymes, ABG, CBC, chem-7, Mg, Phos, and CXR

Management

- If patient is unstable (e.g hypotensive with arrhythmia), call Code Blue and go through ACLS protocol
- If no signs of hemodynamic instability,
 - For **a. fib w/ RVR**: can try rate control with Diltiazem (15 mg IV x 2 q30min), Metoprolol (5 mg IV x 3 q15min), or Digoxin (0.5 mg IV x 1, additional 0.125 mg IV in 2-3 hrs); consider Amiodarone load and then gtt if can't achieve good rate control with other agents
 - For **SVT**: Valsalva maneuver; Adenosine 6 mg rapid IV push, can be followed by another 12 mg rapid IV push
 - **If narrow complex SVT with stable BP**: Verapamil 2.5-5 mg IV x 1 or Diltiazem 10 mg IV x 1
 - **If wide complex SVT with stable BP**: manage as stable VT

BRADYCARDIA

Sinus bradycardia (HR<60)

- Asymptomatic with good bp—no treatment
- Hypotensive, dizzy, syncopal—begin ACLS bradycardia protocol, get STAT EKG

See patient immediately if with chest pain, SOB, or hypotension; and call your resident

DDX: Drugs (beta-blockers, CCB, digoxin), sick sinus syndrome, MI (inferior ischemia), AV block

Heart blocks

- Any type: if hypotensive, get temporary pacemaker and begin ACLS protocol
- 1st degree: PR interval > 0.20, 1 P wave for each QRS if stable BP, do nothing
- 2nd degree:
 - Mobitz I (Wenckebach): lengthening PR interval then dropped QRS; if stable BP, do nothing
 - Mobitz II: constant PR, periodic dropped QRS; have temporary pacer/atropine ready, figure out why block exists, consider cards consult
- 3rd degree: no relationship between P and QRS, generally quite bradycardic; place temporary pacemaker on patient, figure out why block exists, call cardiology

Management

If BP stable, continue to monitor and consider transferring to telemetry (7B)

If BP unstable, follow ACLS bradycardia protocol and call ICU team to evaluate

- Consider Atropine 0.5 mg IV, may repeat to a total dose of 3 mg
- Consider Epinephrine gtt (2 to 10 ug/min) or Dopamine gtt (2 to 10 ug/kg per min)
- Consider transcutaneous pacing if not responding to meds
- Consider cardiology consult
- If becomes pulseless arrest, call Code Blue, and follow ACLS PEA protocol

HYPERTENSION

Consider rechecking BP (from both arms), using properly fitting manual cuff, and doing it yourself.

Urgency of treatment depends on degree of HTN, end-organ damage from HTN (cardiac ischemia, pulmonary edema, etc), and coexisting medical conditions (MI, CHF)

Coexisting coronary artery disease and CHF may lower your threshold to treat and your target BP

In absence of end-organ damage or cardiac disease, mild inpatient HTN often does not require immediate treatment by cross coverage.

Hypertensive emergencies (call your resident STAT): usually when SBP > 190-200)

- Pt has signs of end-organ damage from acute HTN (encephalopathy, altered mental status, CVA, MI/angina, chest pain, renal insufficiency)
- While await ICU transfer: reduce BP by no more than 25% in the first 2 hrs; start with IV HTN meds, then consider start IV **Nitroprusside** gtt

Evaluation

- What is baseline/recent BP? (look at recent vitals flowsheet)
- Any coexisting cardiac disease?
- Easily treatable causes of HTN? (pain, anxiety, drugs-amphetamines, EtOH withdrawal)
- If acute end organ damage is of concern (usually when SBP > 190-200), check for
- ROS: CP, SOB, HA, focal neuro sx, hematuria?
- Physical exam: neuro, funduscopic, cardiac (JVD, S3, rales?)
- Tests: troponins, CBC, BUN/Cr (chem-7), UA, ABG, pCXR, EKG, +/- head CT if indicated

Goal BP

- If stroke- SBP approx 190-210 or 25% reduction in SBP for 1st 24hrs (overaggressive Rx decreases cerebral perfusion)
- If other acute end organ damage- lower SBP approx 25% in 1st 24 hrs
- If coronary dz- SBP < 140, DBP < 90 usually
- If none of the above- SBP < 180 usually is enough

Treatment options (a partial list, doses are for PRN coverage only)

- If not on max dose, consider increasing their current Rx or additional doses
- Consider contraindication to particular antiHTN Rxs (DM, asthma..)

PRN Hypertensive Meds (also consider increasing BP regimen to prevent spikes once controlled):

Hydralazine

- 25-50 mg PO q4hrs PRN or 5-10 mg IV q 20 min
- Safe with low EF or pregnancy (we use lots of this, it is your friend at night!)

Metoprolol

- 25-50 mg PO q4hrs PRN, max 200 mg/day or 5-15 mg IV q2hrs PRN
- Avoid in acute CHF, bradycardia <60, heart block

Labetalol

- 20-80 mg IV q5-10min up to 300 mg
- Avoid in acute CHF, bradycardia < 60, heart block, asthma/COPD/wheezing

Enalapril

- 5 mg PO q4hrs PRN or 1.25-2.5 mg IV q6hrs PRN safe in low EF or CHF, not in pregnancy

Clonidine

- 0.1 mg PO q20 min PRN, max 0.6-0.8 mg/day
- Safe in CHF or low EF, can cause reflex tachycardia asthma/COPD/wheezing, good for CAD for malignant HTN (end organ damage)

*If inadequate response, consider IV **Nitroprusside** gtt and transfer to ICU.

HYPOTENSION

Definition: usually SBP < 90, but take into account pt's usual BP

Call your resident STAT if pt is in shock

- Pt has signs of end-organ damage from hypotension: altered mental status (brain), chest pain (heart), decreased or no urine output (kidney), or cool/clammy skin.
- MUST be seen immediately

History: Some pts with severe cardiomyopathy run SBP in the 80-90s normally and should not have their meds held when they are in their usual range. Young pts may have SBP in the 90s, particularly 2nd trimester pregnant pts and do not require treatment if asymptomatic.

Treatment Options

- Trendelenberg position
- Ensure adequate IV access (one or preferably 2 large bore IVs)
- Ensure adequate airway
- Check pulse
 - Symptomatic bradycardia < 55 then go to ACLS protocol
 - Consider Stat EKG to r/o arrhythmia or ischemia
- Bolus with NS wide open (500 cc at a time up to 2L or more total)
 - Use less IVF if old, CHF, rales, edema, JVD
- Hold any contributing meds
- If no response to 1-2 L IV NS, (BP still < 85-90), then start a pressor and transfer to ICU

Figure out **why** the patient is hypotensive and treat the underlying cause!!!

Common etiologies

Hypovolemia: GI bleed, V/D, overdiuresis, post-op, third spacing

Cardiogenic: ischemia, MI, CHF, arrhythmia, valvular disease, tamponade

Sepsis: locate possible sources, pan-culture, start abx for likely sources

Overmedication: antihypertensives, narcotics, benzodiazepines. Hold meds

Endocrine: Addison's, myxedema, thyroid storm, call endocrine

Miscellaneous: PE, aortic dissection, auto-PEEPing (increased intrathoracic pressure)

HYPOGLYCEMIA

Definition: glucose < 70

- If taking POs, give juice
- If NPO, give 1 amp D50 IVP
- Consider holding pt's insulin and/or oral diabetic meds
- Recheck glucose in 1-2 hrs
- If no IV access, can give Glucagon 1 mg SC or IM
- Consider starting D5 or D10 containing IV fluids if
 - Recurrent or persistent hypoglycemia
 - Pt is NPO
 - Pt has cirrhosis or liver failure
- Consider increasing frequency of accuchecks to q2-4 hrs
- Pts on D10 drip need to be monitored with q1hr accuchecks in ICU

HYPERGLYCEMIA

Definition: glucose > 150

- Remove glucose from IV fluids if possible
- ADA diet (specify number of calories)
- Accuchecks qAC and qHS
- Insulin sliding scale (see sample in admission orders section)
- If BS > 300, consider checking UA for ketones or chem-7/acetone to r/o DKA
- Diabetic educator and nutritionist to see patient when able

DIABETIC KETOACIDOSIS (DKA)

DKA is a medical emergency requiring treatment that is not only prompt but also appropriate and thorough.

Laboratory Evaluation

- BMP Q4 – Paying attention to serum potassium, blood sugar (BSR), and anion gap.
- Serum/Urine Ketones (via UA) once – Demonstrating that AG is due to DKA.
- Other testing – As needed to identify the cause of DKA (i.e. infection, MI, etc.)
- Accuchecks Q1

Treatment (There is a protocol sheet that can be used in the ED)

Prioritize fluids, electrolytes, and then insulin (in that order, though most often these priorities can be managed simultaneously without issue).

Fluids – DKA patients are typically between 5-11L fluid depleted as a result of osmotic diuresis (glucose). Initial diuresis should always use **0.9N NaCl and should include ~2L in the first hour**, and **~125cc/hr** thereafter. It should be noted that the treatment of DKA is directed at resolution of AG acidosis; therefore, **if the BSR reaches 250 without closure of the gap, fluids should be switched to D5 0.45N NaCl** at the same rate to support the BSR until the gap does close.

- **ORDER: 0.9N NaCl @125cc/hr until BSR <250, then switch to D5 0.45N NaCl @125cc/hr. (W/or w/out KCl)**

Electrolytes – It is necessary to identify the potassium level before starting IV Insulin in a DKA patient, and then to **follow AG Q4 hours after starting**. During DKA, potassium is displaced from the intra to extracellular space by H⁺, and is artificially elevated; additionally, as diuresis occurs throughout DKA, potassium is flushed out of the kidneys. The action of insulin causes potassium to rush back into the intracellular space, and life-threatening arrhythmias may ensue if this is not corrected beforehand.

- **Do not start insulin unless potassium is >3.3.**
- **Between 3.4-3.6, insulin may be started but give at least 40mEq KCl IV.**
- **If between 3.7 and 4.7, include 20mEq KCl into each liter of IVF.**

Insulin – Insulin is first bolused and then run at a fixed rate. Insulin is dosed at **0.1U/kg for bolus**, then **0.1U/kg/hr** thereafter. Check **fingerstick BSR Q1**, and if the BSR is not decreasing, you may increase the drip rate by 2/3. When BSR is <250, support with D5 and continue the drip rate unchanged until the gap closes.

- **ORDER: Regular Insulin IV Bolus 0.1units/kg; Regular Insulin IV drip 0.1units/kg/hr**

Bridging to SubQ Insulin - On AG closure, if the patient is **able to tolerate PO intake** and has a **bicarbonate level of at least 15**, the patient should be switched to subcutaneous long-acting insulin. Plan to use either their **home dose** (if they have one), or **0.3U/kg of NPH (split in half to cover 24hrs, so 0.15U for initial dose)** in addition to regular insulin sliding scale (**RISS**). While **maintaining the insulin drip and the D5 unchanged, feed the patient. 15min after feeding, give the patient the long acting insulin. 45min after, check the BSR again: if BSR is WNL, discontinue both the insulin gtt and the D5 together.**

ABDOMINAL PAIN

What you don't want to miss at night:

- AAA rupture
- Bowel rupture or perforation
- Bowel ischemia: especially in elderly patients w/ a history of atrial fibrillation
- Ascending cholangitis
- Acute appendicitis
- Retroperitoneal hematoma

Call your resident (if you are worried about...)

Acute abdomen or intra-abd bleeding, rebound tenderness, guarding, hypotension, dropping H&H

Labs to obtain

- Consider: CBC w/ diff, chem-7, Mg, Phos, LFTs, lactic acid, amylase, lipase, beta-hCG, UA, ABG, guiac
- Start with: flat KUB (ileus, obstruction, volvulus), upright abdominal film (for bowel perforation), CXR, or ECG
- Others: CT of abd without contrast (kidney stone), with IV contrast (abscess, AAA, dissection, bleed/hematoma, cancer, pneumonia, pancreatitis/appendicitis/diverticulitis/colitis), or with PO contrast (obstruction), abd U/S (liver/cholecystitis/bile duct size), transabdominal U/S (ovarian torsion, ruptured cyst, abscess)

Management

- Rule out first an acute abdomen or bleeding that require immediate surgical attention
- If stable, keep the patient NPO, start IV fluids, place NGT (if N/V), place foley (for strict I&Os)
- Consider antibiotics, especially for gram neg and anaerobic coverage
- Perform serial abdominal exams (q6-8h if concerned)

GI BLEED/ DROPPING HCT

Check vitals, including orthostatics and urine output. Key is checking hemodynamics!!!

- these will provide clues to amount of bleeding before Hct drops several hours later

Call your resident (and consider ICU transfer if you are worried about...)

GI bleeding leading to hypovolemic shock or symptomatic anemia

Patient history

- Red hematemesis is more worrisome than coffee ground (fresher, more likely ongoing)
- Maroon stool is worse than melena (lower or more brisk upper bleed)
- Patient on heparin, aspirin, or coumadin?
- Does the patient have a hx of previous bleed or liver disease?

Things to do

- 2 large bore IVs for access
- Bolus with NS or LR if hypotensive or orthostatic
- Monitor vitals frequently
- Blood draws-
 - STAT Hgb/Hct, continue checking q 4 hrs
 - T+C 2-4 units
 - Chem-7 required only if concerned about renal failure
 - PT/PTT if none recent
- rectal exam
 - Heme (+) brown stool usually associated with a slower bleed
 - Melena is a more significant bleed
 - Maroon stool is a massive brisk bleed or a lower GIB
- NG lavage
 - Lavage with water until clear, note how much it takes to clear, note appearance of fluid
 - All clear means no or minimal UGIB, lower GIB, or duodenal bleed below level of NGT
 - Pink fluid/coffee grounds which clear after lavage means UGIB that's stopped for now
 - Great red gushings that don't clear means ongoing bleeding- have GI come in!
 - If known to have large varices, consult with resident before placing NGT.
- If there is a chance of significant bleed, call GI and maybe surgery
- Make pt NPO in case of endoscopy or surgery
- Stop Heparin, Coumadin, and ASA/NSAIDS unless absolutely necessary
- Start Protonix 40mg IV bid
- Consider: IV Octreotide (50 ug bolus then 50 ug/hr) if h/o variceal bleed
- Consider FFP if PT/PTT prolonged and plt transfusion if plt<30-50

- Consider Vit K if elevated INR
- Consider acetaminophen/diphenhydramine prior to blood transfusions
- Consider Furosemide in between transfusion of blood products (pRBC, FFP, cryo)

FEVER

Definition for workup: $T \geq 101.5$; if neutropenic or immunosuppressed $T \geq 100.5$

1. Obtain vital signs
 - If hypotensive, go to hypotension section and examine pt immediately
2. Figure out relevant medical conditions and the last time patient was “cultured.”
 - If the patient had cultures < 24 hrs ago, it’s probably not necessary to repeat, unless the patient is now unstable or something else has changed
3. Interview patient
 - Cough? Phlegm? Dysuria? Headache? Stiff neck? Diarrhea? Pains? Sore throat?
4. Examine patient
 - Wind- pneumonia, atelectasis, pharyngitis
 - Water- UTI
 - Wound- incisions, cellulitis, skin abscesses, infected decubitus ulcer
 - Wires- IV sites
 - Wonder drugs- drug fever
 - Walk- DVT/PE (less common)
 - Miscellaneous- meningitis, gastroenteritis, intra-abdominal infection, sinusitis
5. Culture patient
 - Blood cultures x 2 sets (1 set equals 2 bottles (1 aerobic and 1 anaerobic))
 - Consider drawing an extra set of BCx from any longstanding lines
 - Consider fungal cultures if AIDS or fever w/prolonged antibiotics and risk factors for fungemia (diabetes, central lines, TPN, intraabdominal catastrophe, neutropenic)
 - Consider AFB blood cultures if AIDS (for MAI)
 - CXR if any pulmonary abnormalities
 - UA +/- urine cx
 - Sputum GS/culture if CXR infiltrate or significant pulmonary symptoms
6. Decide if antibiotics are needed
 - If hypotensive, cover likely sources discovered above and more broadly for possible sources, usually including gram negative coverage
 - If neutropenic, cover likely sources discovered above and make sure includes double GN coverage (% segs + bands x WBC count = absolute neutrophil count < 750-1000)
 - If no clear source of infection and patient is stable and likely to stay stable, try to delay abx addition or changes until cultures return to guide selection of abx

SURVIVING SEPSIS GUIDELINES

<http://www.sccm.org/Documents/SSC-Guidelines.pdf>

Initial Resuscitation

- Begin resuscitation immediately in patients w/hypotension or Lactate >2.4mg/dL.
- Resuscitation goals (to be reached w/in 6hrs):
 - **CVP 8-12mmHg (if intubated: 12-15mmHg)**
 - **MAP >65mmHg**
 - **Urine Output (UOP) >0.5mL/kg/hr**
 - **ScvO₂ >70% or SvO₂ >65%**

Diagnosis

- Obtain appropriate cultures before starting Abx if this doesn't hamper time to treat.
- Appropriate Cultures:
 - **BCx x2, and one BCx** from each indwelling vascular access device
 - **UA/UCx**
 - **SCx**
 - And other cultures as indicated.
- Consider imaging studies as needed for infectious sources/site control, if safe to obtain.

Antibiotic Therapy

- IV Antibiotics should always be given within the first hour of recognizing Severe Sepsis or Septic Shock.
- Antibiotics should be broad spectrum and have good penetration into the presumed source, see hospital antibiotic ladder.
- Reassess antibiotics daily, and plan to de-escalate after no more than ~3-5 days (cultures permitting).
- Duration of therapy no more than **7-10 days**.
- Stop antibiotic therapy if cause is found to be non-infectious.

Source Control

- Identify sites of infection amenable to surgical intervention (debridement) and remove vascular access devices that are a likely source of infection.

Fluid Therapy

- Crystalloids and colloids are equivalent for fluid resuscitation in sepsis, although crystalloids are significantly less expensive (i.e. prefer crystalloids).
- IVF should be given as boluses during sepsis rather than as high rate maintenance fluid.
- Give at least 500cc to 1L boluses at a time, more if needed. Continue to reassess frequently if patient has not reached goal.

Vasopressors

- Use pressors after **6L of fluid resuscitation** (or beforehand if pressure is dangerously low and fluids aren't keeping up).

- First line pressor in sepsis is **Norepinephrine**.
- **Norepinephrine Dose: 0.5mcg - 80mcg/min** (though it technically doesn't "max out"; give more if needed)
- If a second pressor is needed, consider evaluating LV function for a simultaneous cardiogenic element:
 - If CI is low: add **Dobutamine 2-30mcg/kg/min**
 - If CI is high: add **Vasopressin 0.03units/min**
- If pressors are needed, place an arterial line and a central line ASAP.

Steroids

- If hypotension is poorly responsive to fluids and pressors, consider the addition of steroids.
- Dosing is **Hydrocortisone 100mg TID**.
- May also consider a high dose cortisol stimulation (Cort Stim) test:
 - Test baseline Cortisol Level (Time 0)
 - Give 250mcg Cosyntropin.
 - Test Cortisol Level at 30min and 60min
 - If initial value is <15, or does not increase by ~9, pt may benefit from Hydrocortisone.

Recombinant Human Activated Protein C (rhAPC)

- Not indicated, old data, don't use it.

Blood Products

- To be used if, nearing the end of 1st 6h, ScvO₂ remains <70%.
- At that time, if Hct is <30%, you may consider transfusing blood products.

DECREASED URINE OUTPUT

Definition (adults)- less than 30 cc/hr

Key point: Differentiate prerenal, renal, and postrenal in order to treat rationally

Approach

- Physical exam: mucous membranes, JVD, edema, distended bladder, rales
- BUN/creatinine trend, blood pressure/pulse,
- I/O over the past several days
- Meds: ACE-I, diuretics, NSAIDs, IV contrast

Prerenal: low perfusion of the kidneys results in low urine production

- Causes: overdiuresis, hypotension, N/V/D, bleeding, sepsis, cardiac failure
- Clues: dry mucous membranes, poor skin turgor, tachycardia, I<<O, overaggressive diuresis, BUN/Cr ratio >20, pt is thirsty

Renal: intrinsic renal disease

- Causes: glomerulonephritis, ATN, chronic kidney disease, hepatorenal syndrome, interstitial nephritis
- Clues: long h/o high creatinine, liver failure, recent severe hypotension, exposure to meds that can cause ATN (long-term aminoglycosides, IV contrast) or interstitial nephritis (some antibiotics, NSAIDs, Cimetidine, thiazides, Allopurinol, etc.), cellularity or cellular casts on UA, urine eosinophilia (interstitial nephritis)

Postrenal

- Causes: foley obstruction, BPH, prostatitis, occas renal stones, huge pelvic mass
- clues: painful distended bladder, increased post void residual, prostate exam

Labs to order

- UA: cells, casts, protein; urine eosinophils,
- FENa or FEurea: urine electrolytes, urine creatine, urine urea (if on Furosemide);
- Chem-7; consider ABG, ECG (if suspect hyperkalemia)
- Others: renal U/S, bladder scan

Management

- To r/o **post-renal**:
 - Does pt have a Foley? Consider flushing it with 30 cc NS to see if it's plugged.
 - Do post void residual--Have pt try to void. Measure this amount. Then straight cath w/foley. If the amount obtained is > 50 cc, leave the foley in place (postrenal). Otherwise d/c it (not postrenal)
- If patient is **prerenal** (dry or otherwise not perfusing kidneys)
 - Try NS bolus 250-500 cc and see if UOP increases over next 1-2 hrs
 - If not, reevaluate fluid status. Make sure no rales/JVD or other signs of volume overload. If not, then try another IV bolus.

Exceptions

- CHF patients don't perfuse kidneys because of pump failure and do not do well with IVF boluses! Try instead Digoxin, furosemide, and ACE-inhibitor in situations with low EF.
- Cirrhotic patients also behave like CHF patients (volume overloaded but intravascularly dry). You can try a little IV bolusing but be aware that they will instantly convert excess fluid into ascites & edema.
- Hypotension overrides all these considerations. Usually give IVF wide open at first, then a pressor if needed (see Hypotension section). If patient has intrinsic **renal** cause, address the specific cause. You may want a renal consult if severe enough.

The patient may tend to be volume overloaded. If so, try Furosemide (below)

Tips on diuresing a wet or euvolemic patient

- IV form is about twice as strong as PO per mg; effect lasts 2-6 hrs
- Start at 20 mg IV or 40 mg PO if pt is not accustomed to Furosemide
- Start at double the pt's usual dose if they are already on Furosemide
- If no response in 1-2 hours, double the dose and try again
- Renal failure makes pts more Furosemide resistant
- At 120 mg Furosemide+, consider Metolazone 5 mg PO 30 min before Furosemide.

Indications for emergent dialysis: severe volume overload, electrolyte abnormalities (K+, Phos), metabolic acidosis, symptomatic uremia, toxin elimination (ethylene glycol). *Notice creatinine is not on this list!

HYPOKALEMIA

Definition: $K < 4.0$

- In general, we keep $K > 4.0$ in medicine patients. This is especially true of cardiac patients receiving Furosemide or Digoxin.
- Rule of thumb: For each 0.1 that you want to raise K, you will need about 10 mEq KCL.
- If the patient has renal insufficiency ($Cr > 2.5$), reduce the KCl dose significantly... you may not want to replete K at all, or reduce dose by at least half.
- Check for hypomagnesemia (you won't be able to correct K+ if pt's magnesium is low)
- Options for repleting K+

1. Oral KCl (K-dur or Klor-Con)

- 20-40 mEq PO, repeat q2hrs to desired dosage
- Disadvantages: tastes nasty, GI upset
- Advantages: no fluid load, safer than IV, cheaper

2. KCl IVPB ("bolus")

- Maximum concentration is 10 mEq per 100 cc of fluids
- Maximum rate of repletion is 10 mEq/h
- Via central line, you can increase concentration to 20 mEq per 100 cc fluids
- Disadvantages: burns @ IV site, IV fluid load, limited infusion rate, can't open IV wide
- Advantages: okay if NPO, avoids nasty taste of PO KCl
- Sample order: KCl 40 mEq in 500 cc NS TRO 4 hrs IVPB
- Never IV push KCl! This leads to cardiac arrest!!

3. Add KCl to maintenance IV fluids

- Maximum concentration is 60 mEq/L
- Disadvantages: slow repletion rate, may forget to remove KCl when no longer needed

4. Use K-Phos instead of KCl

- Useful when PO₄ is low also (< 2.0)

- See Hypophosphatemia section
- Disadvantages: slow repletion rate, hypocalcemia if run too fast

HYPERKALEMIA

Definition: $K > 5.0$ (without hemolysis)

Signs & symptoms

1. Arrhythmias, muscle weakness, paresthesias
2. EKG changes: peaked T waves, PR prolongation >0.20 , widened QRS >0.12 , absent P,
3. Ventricular arrhythmias, sine wave

What to do

1. Draw repeat chem-7, avoiding hemolysis
2. Stop any K containing IVs or Pos
3. STAT EKG
4. If $K < 6.5$ and no EKG changes
 - give Kayexalate 30 gm PO or Furosemide if pt able to make urine and makes sure lytes are included in AM labs
4. If $K > 6.5$ or EKG changes (other than peaked T waves)
 - give Calcium Gluconate (10%) 10 cc IV over 3 min (stabilizes myocardium x 30 min)
 - Give 1 amp NaHCO_3 (shifts K intracellular)
 - Give 1 amp D50 with 10 units regular insulin IVP (shifts K intracellular)
 - Give Kayexalate 30 gm PO (causes K loss via GI tract)
 - Can give Kayexalate 50 gm in 200 cc sorbitol as retention enema if NPO
 - If renal failure, dialyze ASAP
 - Repeat lytes in 4-8 hrs
 - Cardiac monitor

HYPOMAGNESEMIA

Definition: Mg < 2.0

- Mg depletion may make it difficult to replace Ca and K
- Do not replete Mg in renal failure patients unless severe hypoMg
- Burns at infusion site
- Replacement options:
 - Magnesium Sulfate 2-5 grams in 250-500 cc NS or D5W over 3 or more hours IV
 - Magnesium Gluconate (500 mg PO tab)
 - Magnesium Hydroxide (Milk of Magnesia 390mg/5mL po liquid, Mylanta 200mg/5mL PO liquid, Mylanta 400mg/5mL PO liquid)
 - Magnesium Lactate (250 mg PO tab)
 - Magnesium Oxide (400 mg PO tab)

HYPOPHOSPHATEMIA

Definition: PO₄ <2.0

- Signs/symptoms: muscular weakness, including respiratory muscles, hemolysis if PO₄ around 1.0
- Replacement options:

IV preparations	Content	Phosphate level		
		<1.0	1.0-1.5	1.6-2.5
Na-Phos	3 mMol/ml	0.5 mMol/kg IBW over 6-8h	0.3 mMol/kg IBW over 6-8h	0.15 mMol/kg IBW over 4-6h
K-Phos	3 mMol/ml + 4.4 mEq K	0.5 mMol/kg IBW over 6-8h	0.3 mMol/kg IBW over 6-8h	0.15 mMol/kg IBW over 4-6h

Mix in 250 cc NS, usual doses about 9-30 mMol, infuse slowly to avoid Ca/Phos binding

PO

Neutraphos 250 mg (8.1 mMol) Phos + 7.1 mEq K per pack, take 1-2 packs PO TID

- Neutraphos-K has 2x more K than standard Neutraphos

HYPOCALCEMIA

Definition

Ca < 8.5 (correct Ca by adding 0.8 for every drop of 1 in albumin below 4.0)
or ionized Ca⁺⁺ < 1.1 mM/L

Causes

Magnesium depletion (fix Mg first), alkalosis, sepsis, renal failure, pancreatitis.

Signs/symptoms

Neuromuscular excitability (tetany, hyperreflexia, seizures), long QT, hypotension)

Treatment

PO options:

- Calcium Carbonate 500-650 mg tabs
- Oscal (Calcium/Vitamin D) 250mg/125units or 500mg/200units

IV options:

IV preparations	Content	Ca <8.0	Ca >8	Comments
Ca Chloride (10%)	272 mg Ca/10 cc vial	1 gm over 1hr	Give Ca gluconate	3x amt of Ca than Gluconate, generally reserved for Code Blues
Ca Gluconate (10%)	90 mg Ca/10 cc vial	2 gm over 15 min, then 1-3 gm over 1-3 hours	1-2 gm over 1-2 hrs	Preferred IV agent, less irritating

HYPONATREMIA

Definition: Na < 135; Generally no cross coverage action required until Na < 130

*However, rate of Na change more important than actual lab value.

Na < 129 may give altered mental status

Na < 120 may cause seizures/arrhythmias

Approach to Hyponatremia

- Assess patient for pseudohyponatremia caused by very high glucose
- Correct Na 1.6 for every 100 increase in glucose over normal
 - Treat hyperglycemia
 - No need to treat Na if it corrects to normal
- Assess fluid status clinically (JVD, mucous membranes, rales, edema, h/o CHF, cirrhosis, fluid loss)

Euvolemic

- Water restrict (for ex. 1000 cc/day)
- If Na < 120, consider giving saline plus Furosemide
 - For example, NS 100-150 cc/hr + Furosemide 20 mg IV q6h or 3% saline 40-50 cc/hr + Furosemide 20 mg IV q6h
- Stop or slow down rate when you reach your goal Na (see below)
- Do not correct faster than 0.5-1 mEq/L per hour or risk central pontine myelinolysis!
- Once you reach Na 120, you are out of danger range and can slow down correction
- Correct underlying cause: SIADH, adrenal insufficiency, hypothyroidism, polydipsia, pain, meds (Amitriptyline, Carbamazepine, Chlorpropramide, phenothiazines...)

Hypervolemic (CHF, cirrhosis, renal failure, nephrotic syndrome)

- Water restrict (for ex. 1000 cc/day)
- Avoid giving IV fluid
- 2 gm Na diet
- Furosemide diuresis
- Dialysis if anuric or unable to diurese

Hypovolemic (N/V/D, third spacing, thiazide diuretics, adrenal insufficiency)

- Give NS IV
- Usually do not diurese
- If severe (Na < 120), can give saline + Furosemide once volume repleted (see euvolemic above)

HYPERNATREMIA

Definition: Na > 148

Almost always reflects free water depletion and hypovolemia, often in a patient who can't access water

Approach

- First give NORMAL SALINE to correct hypotension and hypovolemia, then work on the Na problem
- Calculate free water deficit = $0.6 \times \text{usual weight (kg)} \times (\text{Na}/140 - 1)$
 - The deficit reflects how much free water will eventually need to be given in the form of D5W, or oral or G-tube water.
 - If you use $\frac{1}{2}$ NS, you will need twice as much because it is only half as much free water as D5W
 - Remember this calculation is an approximation only and may need adjustment based on response
 - Give about $\frac{1}{2}$ the free water deficit back over the first 24 hrs and the rest afterwards
 - For example, free water deficit = 6L. First day will replete 3L, or 3000 cc over 24 hrs = 125 cc/hr D5W or 250 cc/hr $\frac{1}{2}$ NS
 - Do not correct too quickly or brain edema may result!

IV FLUIDS

Fluid resuscitation: for intravascular volume expansion or replacing significant volume loss

- Use isotonic solution only: NS or LR
- To replace 1 L of intravascular volume, you need 3L of isotonic solution due to volume redistribution to extravascular space;
- Bolus 1-2 L NS over 30-120 min, for severe dehydration
- Consider 250-500 cc at slower rate if there is a h/o cardiac disease
- Consider colloids (i.e. Albumin) to reduce infusion volume in edematous patients
- Fluid resuscitation first, pulmonary status next: you can always intubate the patient to achieve adequate ventilation/oxygenation

Maintenance fluids: D5 1/2NS or D5 1/2NS +20 meq KCl (if normal kidney function);

4/2/1 rule:

- 4 ml/kg/hr for the first 10kg
- Add 2 ml/kg/hr for the next 10kg
- Add 1 ml/kg/hr for each kg over 20
- e.g.: for a 60kg adult: $(4 \times 10) + (2 \times 10) + (1 \times 40) = 110$ ml/hr

*Increase in maintenance fluid requirement is needed for patients with the following:
hyperventilation, sweating, fever, hyperthyroidism, GI losses;

- consider: 1) increase the rate of maintenance fluid or 2) administrate intermittent fluid bolus pending needs;

*Consider decreasing maintenance fluid rate in patients with CHF, liver failure, or renal failure

Replacement fluids: on-going loss from diarrhea, vomiting, chest tubes, NGT suction, or various other sources may cause increase loss in water, Na, and K

- Goal: replace losses “cc for cc” with additional fluids of similar composition

Adequate urine output in pt w/ normal kidney function is an efficient way to monitor hydration status: expect 0.5-1 ml/kg/hr

Common Fluid Composition

Fluids	NA	Cl	K	HCO₃	Ca
<u>Crystalloids</u>					
NS	154	154			
D5 NS	154	154			
1/2NS	77	77			
D5 1/2NS	77	77			
D5 1/4NS	39	39			
D5W					
LR	130	109	4.00	28	3
3% NaCl	513	513			
<u>Colloids</u>					
Hespan	154	154			
Plasmanate	145	100	0.25		
25% albumin	130-160	130-160	1.00		

ALTERED MENTAL STATUS

Over the phone:

Vitals, oxygen, accucheck, opioid/sedation pt has received (think: thiamine, oxygen, naloxone, and glucose)

Differential diagnosis

- Infection: meningitis, encephalitis, systemic infections
- Drugs: benzodiazepines, opiates, H2 blockers, steroids, etc.
- Metabolic: hypoxia, ethanol withdrawal, hepatic encephalopathy, uremia, electrolyte imbalance, hypoglycemia, seizure
- Cardiac: hypotension
- Neurologic: intracranial bleed, stroke, tumor, seizure,
- Other: “sundowning,” “ICU psychosis,” TTP, CNS vasculitis

Call your resident (if you are worried about...)

Sepsis or meningitis, intracranial mass or increased cerebral pressure, severe alcohol withdrawal, acute CVA

Assessment

- Age of patient
- Baseline mental status
- Acuity of MS change
- Recent medications, falls, or trauma
- Vital signs
- Basic physical exam
- Complete neuro exam, esp level of consciousness

Labs to consider

- Pulse ox, ABG, accucheck,
- CBC, w/ diff chem 7, mg, phos, ca, urine tox, UA, cultures
- EKG, pCXR, EEG, Head CT (with contrast if possible: seizures or tumor), LP (check fundi, focality of neuro exam, and maybe head CT first)

Management

- Treat underlying cause
- Consider: Narcan, D50/Thiamine, Flumazenil, oxygen
- For DTs: Librium 50-100 mg PO q6-8h; or Ativan 0.5-1 mg PO/IV/IM q6-8h prn; Thiamine 100 mg IM
- Hold sedating drugs if at all possible, especially in elderly; sedate only if necessary (Ativan IV/IM or Haldol IV/IM)
- Aspiration, seizure, and fall precautions as necessary
- Consider moving pt to a room closer to the nursing station, adding a sitter to provide frequent reorientation, or a bed alarm for fall precaution
- Soft restraints and posey only as necessary, as they may worsen agitation
- Consider transfer to ICU if depressed consciousness or respiratory depression

STATUS EPILEPTICUS/SEIZURES

Status epilepticus: persistent or recurrent seizures without intervening period of recovery

Call your resident and the ICU team STAT; can also activate RRT

1. ABC: protect the airway. Ensure a working IV.
2. Consider giving 1 amp D50/Thiamine or Narcan 0.4 mg IV.
3. Check glucose, electrolytes (Na, Ca, Mg), pulse ox, anticonvulsant drug levels
4. Valium 5 mg slow IVP. Repeat x 2 if continued seizures. Can substitute Ativan 1-2 mg x 3 instead.
5. Load with Dilantin (if not already on Dilantin) 1000-1500 mg IV slowly over 30 min (18-20 mg/kg). Monitor BP and EKG during infusion (can cause hypotension). Do not mix in D5 as this will precipitate the Dilantin.
6. If seizures persist, call neurology stat and consider Phenobarbital 300 mg IV over 30 min. Repeat 2-3 times, observing for respiratory and cardiac depression.
7. If refractory after 60 min, consider pentobarbital coma (need anesthesia and neuro)
8. Intubate at any time during this protocol if airway protection or respiratory depression is an issue

HEADACHE

See patient immediately if the headache is acute and severe in onset which is not relieved by pain medication, or if it is associated with N/V, changes in vision, fever, or decreased consciousness.

Call your resident (if you are worried about...):

Meningitis, subarachnoid hemorrhage/subdural hematoma/mass lesion with concerns for herniation, new CVA

Other DDx: tension, cluster, drugs, migraine, sinusitis, hypertension,

Labs to obtain

- CBC, ESR (temporal arteritis)
- Head CT if in doubt (neuro/trauma pt with changes from baseline, new and severe headache, focal findings on neurological exam)
- LP: if concerned for meningitis or subarachnoid hemorrhage; consider CT first

Management

- First exclude serious life-threatening conditions
- **For mild headaches:** Tylenol 650-1000 mg PO q6h prn; Ibuprofen 200-600 mg PO q6-8h prn
- **For migraine:** Ibuprofen 25 mg PO (can repeat q2h for max dose of 200-300 mg/day) or Ergotamine [*be careful in pt w/ angina, uncontrolled HTN, hemiplegia, or basilar artery migraine]; can also consider narcotics (Meperidine or Codeine) but minimize their usage

SHORTNESS OF BREATH

Differential diagnosis

- Cardiovascular- CHF, PE, tamponade, arrhythmias, ischemia
- Pulmonary- pneumonia, asthma/COPD (bronchospasm), pneumothorax, massive pleural effusion
- Less often atelectasis
- Miscellaneous- anxiety, upper airway obstruction e.g., mucous plug), severe anemia, massive ascites, pregnancy

Call your resident (if you are worried about...)

Tension pneumothorax, airway obstruction, moderate to severe hypoxia (O₂ sat <85% on RA), stridor, tamponade, altered mental status

Check vital signs

- Respiratory rate (check it yourself – the nurse will always say it’s 18-20)
 - RR<12/min suggests central depression (stroke, narcotic/drug OD)
 - RR>20/min suggests hypoxia, pain, anxiety, bronchospasm...
- Heart rate: consider arrhythmias. Sinus tach is common and nonspecific)
- Temperature: rule out infections (pneumonia, sepsis)
- BP: if hypotensive, consider CHF, sepsis, PE, tension pneumothorax

Pulse ox (room air pulse ox is more informative if the pt can tolerate it)

- Rule of thumb:

pulse ox	approximate pO ₂
90%	60
60%	30
- You generally want to keep pulse ox > 92-93%, except in some COPD patients

Examine patient

- Pulmonary status: wheezes, rhonchi, crackles, good air movement, dullness
- Cardiac status: JVD, edema, S3, crackles or other signs of fluid overload
- Mental status changes: if patient is altered

How does the patient look? Comfortable, sick, or deathly ill?

What is the patient’s baseline, history, and comorbid conditions?

What to order (if patient looks/sounds sick)

- ABG: pt may be tiring, retaining CO₂, or if you want to clarify the resp status
- CXR: STAT portable
- EKG: if possibility of MI, arrhythmia, PE, ischemia
- Others: troponins, CBC, D-dimer, V/Q scan, CT angio of chest, 2-D echo (STAT if worrisome for cardiac tamponade)

Management

- To properly oxygenate: nasal O₂ -> face mask -> venti mask or high flow O₂ -> BiPAP -> intubation; keep O₂ >92% (88-92% for COPD).
- For **asthma or COPD**: Duoneb (can do q1h), IV corticosteroids, antibiotics
- For **stridor** (i.e. UPPER airway obstruction): Consider Epinephrine 0.2-0.5 cc of 1:1000 solution SQ if anaphylaxis; call resident; assess for intubation.
- For **mucous plug**: call RT for pulmonary toilet (q6h), aggressive oral suction, bed percussion.
- For **CHF**: Furosemide IV 20-40mg, Albuterol neb; consider Morphine (2 mg IV) or Nitroglycerin; BiPAP. Reassess adequate diuresis 2-3hr s/p Furosemide dose.
- For **PE**: ABG, V/Q scan, spiral CT, LE U/S. If confirmed, Heparin gtt or Lovenox

When to think ICU transfer

If you are needing to give 50-100% O₂ via FM or nonrebreather (NRB) to keep sats >92% after trying above treatments. Call ICU resident to come and evaluate.

RESPIRATORY FAILURE (INTUBATION)

Defined: ABG: pO₂<60, pCO₂>50 with a pH<7.3 on RA

If you thought about intubation, then your patient is very close to requiring intubation.

Indications for intubation

- Patient looks terrible- clinically near respiratory failure, tripod-ing,
- Airway protection- drug overdoses, status epilepticus, preop, upper airway problems w/stridor
- Patient's clinical condition does not improve with BiPAP after 1-2 hrs, particularly via ABG
- ABG looks terrible- can't oxygenate well noninvasively
 - Evidence of respiratory fatigue (respiratory acidosis that is acute)
 - Severe acidosis (pH < 7.20 as a ballpark figure, but consider any pH in the 7.2's)
 - You must consider the pt's baseline ABG status—there are no sharp cutoffs for when you should intubate based upon ABG numbers, especially for pCO₂, but remember: pO₂ < 60, and pH > 7.60 and < 7.20 is bad news for anyone.

Extra resources to call (call in order)

- Your resident
- RT
- ICU resident
- RRT (rapid response team)
- Code Blue
- Anesthesia (for difficult airway or after multiple attempts)

VENTILATOR MANAGEMENT

Indications for Intubation – (a) acute airway obstruction, (b) excessive pulmonary secretions or inability to clear secretions adequately, (c) loss of protective reflexes, and (d) respiratory failure.

Background Knowledge – There are 5 basic ventilator settings: Mode, Frequency, Tidal Volume (TV), FiO₂, and Positive End Expiratory Pressure (PEEP).

Mode – You will only be using A/C V/C+ (assist control, fixed volume delivered each breath that is pressure modulated along with some other bells/whistles) on all the ventilators in the ICU. Only A/C is available on floors and in ED. This means that **every inspiratory effort** the patient makes will be supported with a **full volume breath** (as determined by your TV), but, if the patient makes no efforts, he will still get a breath at a minimum of the control rate. CPAP/Pressure Support will be used to conduct weaning trials (self explanatory).

Frequency – Rate of breathing. This setting is a **determinant of your pCO₂** (how fast you blow off the CO₂ your body makes).

TV – Tidal Volume. This setting is a **determinant of your pCO₂** (how much are the lungs ventilated with each breath)

FiO₂ – Fraction of Inspired Oxygen. Increase to **augment pO₂**.

PEEP – Increase to **augment pO₂**. Start at 5, increase only as high as 8 in the average patient.

Plateau Pressure – At the end of a full inspiration, the airflow out of the patient is capped and the pressure against the cap is tested. Get this value by pressing the “breath pause” button on the vent. Should be **<30cmH₂O**, in general. A product of the relaxation/recoil of lungs, chest wall, etc. upon the air in the lung [e.g. used to calculate “Static Compliance” = Vt/(Pplt-PEEP)]

Peak Pressure – The peak pressure reached as the vent is pushing air into the patient. Should typically be <35. As above for plateau pressures, but also correlates with airway resistance and patient effort/resistance “bucking” (e.g. in a severely asthmatic patient, peak pressure is high but plateau pressure is normal).

Initial Vent Settings – Based on predicted body weight (PBW, or lean body weight):

Men – 50kg + 2.3kg/in (Height in Inches – 60in)

Women – 45.5kg + 2.3kg/in (Height in Inches – 60in)

The PBW is used to calculate the appropriate tidal volume (TV). In a patient without underlying pulmonary disease, use a TV of **8-10cc/kg**. In patients with some form of obstructive disease (COPD, status asthmaticus), use a TV between **6-8cc/kg**. In a patient with ARDS, use a TV of **6cc/kg or less** (see later). Beyond that, use an **average rate (14)**, **FiO₂ 100%** (later titrated as preferred), and **PEEP 5**. Order an **ABG for ~1hr later** so that you can make adjustments, and remember to get a **CXR after intubation**.

Adjusting Vent Settings – For a variety of reasons, you may need to adjust vent settings. The three useful values from an ABG are pH/pCO₂/pO₂ (read in that order).

pH/pCO₂ – There is considerable interplay between pH/pCO₂, so consider them together.

While a normal pCO₂ is 40mmHg, if a patient has COPD, for example, a pCO₂ of 60 may be ok if their pH is compensated metabolically to 7.4. If you decide that you need to change pCO₂ (either because your vent settings are off or you want to help relieve acidosis), change either TV or freq. Because CO₂ is generally created at a constant rate, **$X_i/X_f = pCO_2(f)/pCO_2(i)$** where X is the vent setting you're manipulating.

pO₂ – If the pulse ox or ABG is low, titrate up FiO₂ or PEEP (max 8 for the average patient).

ARDS Settings/Management – The hallmark of vent management in ARDS is a TV of 6cc/kg or less and a high PEEP. See the green book for diagnostic criteria and follow the stepwise changes in vent settings according to the charts below.

Lower PEEP/higher FiO₂

FiO₂	0.3	0.4	0.4	0.5	0.5	0.6	0.7	0.7
PEEP	5	5	8	8	10	10	10	12

FiO₂	0.7	0.8	0.9	0.9	0.9	1.0
PEEP	14	14	14	16	18	18-24

PLATEAU PRESSURE GOAL: ≤ 30 cm H₂O

Check Pplat (0.5 second inspiratory pause), at least q 4h and after each change in PEEP or V_T.

If Pplat > 30 cm H₂O: decrease V_T by 1ml/kg steps (minimum = 4 ml/kg).

If Pplat < 25 cm H₂O and V_T < 6 ml/kg, increase V_T by 1 ml/kg until Pplat > 25 cm H₂O or V_T = 6 ml/kg.

If Pplat < 30 and breath stacking or dys-synchrony occurs: may increase V_T in 1ml/kg increments to 7 or 8 ml/kg if Pplat remains ≤ 30 cm H₂O.

pH GOAL: 7.30-7.45

Acidosis Management: (pH < 7.30)

If pH 7.15-7.30: Increase RR until pH > 7.30 or PaCO₂ < 25 (Maximum set RR = 35).

If pH < 7.15: Increase RR to 35.

If pH remains < 7.15, V_T may be increased in 1 ml/kg steps until pH > 7.15 (Pplat target of 30 may be exceeded).

May give NaHCO₃

Alkalosis Management: (pH > 7.45) Decrease vent rate if possible.

I: E RATIO GOAL: Recommend that duration of inspiration be ≤ duration of expiration.

Weaning and Plans for Extubation – Daily CPAP trials and sedation vacations are the rule for all patients except those on heavier vent settings. If FiO₂ is <45%, you may also begin considering extubation if patients pass CPAP trials. For passing, look at VS (tachycardia, hypo/hypertension, tachypnea) and work of breathing, as well as RSBI (**rapid shallow breathing index= RR/TV in liters, if >105, no good**).

PRESSORS

Sympathomimetic Drugs		Adrenergic effects			Arrhythmogenic potential	Setting
	Usual IV dose	α	β	Dopa		
Dopamine	1–2 $\mu\text{g}/\text{kg}/\text{min}^a$	1+	1+	3+	1+	Oliguria despite “normal” blood pressure Initial emergency treatment of hypotension (any cause) Alternative treatment for bradycardia
	2–10 $\mu\text{g}/\text{kg}/\text{min}$	2+	2+	3+	2+	
	10–30 $\mu\text{g}/\text{kg}/\text{min}$	3+	2+	3+	3+	
Dobutamine	2–30 $\mu\text{g}/\text{kg}/\text{min}$	1+	3+	0	2+	Cardiac shock Pulmonary edema with marginal blood pressure
Norepinephrine	0.5–80 $\mu\text{g}/\text{min}$	3+	2+	0	2+	Initial emergency treatment of hypotension (any cause, especially sepsis)
Epinephrine	0.5–1 mg^b (1:10,000) 1–200 $\mu\text{g}/\text{min}$	1+	2+	0	3+	Cardiac arrest Severe hypotension and bradycardia
Phenylephrine	0.3–0.5 mg SQ (1:1,000) ^c	2+	3+	0	3+	Anaphylaxis
	20–200 $\mu\text{g}/\text{min}$	3+	0	0	0	Distributive shock when no cardiac effect is desired
Isoproterenol	2–10 $\mu\text{g}/\text{min}$	0	3+	0	3+	Refractory bradycardia Denervated hearts
Milrinone	Load: 50 $\mu\text{g}/\text{kg}$ over 10 min Then: 0.375–0.75 $\mu\text{g}/\text{kg}/\text{min}$	0	0	0	2+	Cardiogenic shock

*Note:

- “renal dosing” of dopamine (1-2mcg/kg/min) has been demonstrated to be without benefit; we include it only so that you will recognize it if the order is written by another practitioner.
- Milrinone is a PDE-3 inhibitor and may cause significant peripheral vasodilation; moreover, its mechanism of action bypasses surface receptors, limiting its ability to work with agents like Levophed (which could otherwise ameliorate this side effect). Restrict use of Milrinone to decompensated failure or cardiogenic shock with B-blocker use; use only Dobutamine to augment cardiogenic shock that occurs in the setting of septic (distributive) shock.

Non-Sympathomimetic Pressor Agents

Vasopressin – 0.03U/min: Several studies have demonstrated a relative deficiency of Vasopressin during hemorrhagic and vasodilatory shock states. Additionally, Vasopressin operates at a receptor that is distinct from those being maxed out by sympathomimetic agents (i.e. the V1 receptor); this makes Vasopressin an excellent agent to couple with Levophed during septic shock. Use a fixed dose as indicated above as your second pressor (assuming that CI is high; otherwise, use Dobutamine).

Steroids – Hydrocortisone 100mg TID, +/- Fludrocortisone 50mg/day: While not strictly pressor agents, steroids are instrumental in alleviating the relative adrenal insufficiency that may

complicate shock states. Restrict its use either to patients on chronic steroids or to those with demonstrated relative insufficiency (Cort Stim).

HOW TO GIVE SIGN-OUT

Wards/ICU:

1. Give a brief description of your patient -
 - a. What was **the reason that the patient was admitted** to the Wards or the ICU?
 - b. **What do you think is going on** (your diagnosis; if unknown, what is on your differential)?
 - c. What **labs and studies** have been done to try to find the answer?
 - i. What are the **results** of the labs/studies?
 - ii. Are there any labs, studies, or procedures that **need doing**?
 - iii. Do you have any lab or studies **pending**:
If you have a positive finding, what do you want your co-intern/resident to do for your patient?
 - d. Medications/Vents
 - i. **ANY DRUG ALLERGIES?**
 - ii. What medications is your patient receiving?
#Antibiotic, blood pressure medications
 - iii. For the ICU:
 1. Is the patient on any **pressors or drips**?
 2. Would you like the ICU intern to make any changes to the medications?
 - a. For instance, if the patient is on a pressor (i.e. Levophed), should the intern continue IVF/bolus to get the patient out of shock?
 3. Ventilator
 - a. Would you like the ICU intern to try to wean the patient off the ventilator?
 - e. Anticipating any **problems over night**?
 - i. **Concerns** that you want the covering co-intern/resident to know??
i.e. (hypotension, hypertension, respiratory problem, alter mental status, etc.)
 - ii. **Category Status**
Full Code – do everything for the patient intubation/ shock/ CPR/ Medication)!
Cat 2 – Find out the specific of what you can/cannot do for the patient
Cat 3 – No intubation, No chest compression, medication only?
Comfort Care – ativan/morphine drip?
 - f. Consultation
 - i. Are there any consultants that you are waiting to hear from?
 - ii. Do you want your co-intern to follow up on their recommendations?
 - g. Update your Primary Team

- i. When your primary team comes back in the morning, make sure you update them on any overnight events.

Note: Remember, this is a special opportunity for you to learn from one another; a completed and thorough signout means less work for your co-intern, patient safety, and a peace of mind knowing that your patient is in good hands.

FALL EVALUATION

You may be asked to do a “fall eval” for ANY (private or GME) patient in the hospital

Why did the patient fall?

- Ask the patient or witnesses
- Syncope or presyncope? (unstable vitals? seizure or stroke?)
- Muscular weakness?
- Incoordination?
- Over-medication?
- Slippery floor or obstacles on the floor?
- Element of confusion, agitation, altered mental status?

Assess the damage

- How significant was the fall? From what height? Assisted to the ground? Landing area?
- Is the patient complaining of anything? Pain? Headache? Dizziness?
- Other factors that may increase the severity of the fall...therapeutic heparin or coumadin
- Are the vitals ok? Include orthostatics when able to
- Physical exam
- Head and neck for trauma
- Palpate any painful areas
- Ensure range of motion intact for all extremities
- Check integrity of skin
- Neuro exam
- Areas of special concern: head, hips, wrists

Call your resident (if you are worried about...)

New neurological changes (CVA, intracranial hemorrhage, etc)

Decide on actions

- If unstable vitals, attempt to stabilize (see ACLS protocols or appropriate page in handout). If significant trauma: need for suturing? Need for head CT? (usually limited to bad falls on anticoagulants or LOC or fractures)
- Need for other xrays
- Likelihood of falling again? If so, consider restraints, fall precautions

Document

- Write brief X-cover note describing the above
- Fill out incident report if required (ask nurses)

LAB TESTS FOR COMMON PROCEDURES

CSF Orders

- Tube 1: cell count with differential
- Tube 2: protein, glucose
- Tube 3: gram stain and culture
- Tube 4: hold for later studies

*Depending on clinical suspicion, may also consider ordering: HSV PCR, cytology, VDRL, AFB stain/culture, fungal culture, cryptococcal antigen, India Ink, oligoclonal bands, Lyme titers

Thoracentesis Orders

1. Obtain serum CBC, PTT, PT, INR, LDH, total protein
2. Fluid orders:
 - Tube 1: cell count with diff, cytology
 - Tube 2: total protein, LDH, glucose, amylase, and triglycerides
 - Tube 3: gram stain, culture (aerobic/anaerobic), AFB stain (only with clinical suspicion)
 - Tube 4: pH
 - Evacuated container for cytology
3. Obtain follow-up CXR to eval for pneumo

COMMON COMPLAINTS AND THEIR SYMPTOMATIC MANAGEMENT

***Please identify and treat the underlying cause(s) first!!!**

Constipation: common in immobilized pt on opioid meds

- Docusate (Colace): 100-200 mg PO bid
- Senna (Senokot): 2 tabs PO QID prn
- Bisacodyl (Dulcolax): 10 mg PR daily prn
- Miralax: 17 grams dissolved in 4-8 oz H₂O PO daily prn
- Milk of Mag: 30-60 ml PO daily prn; Max 60 ml/24h (avoid in renal failure)
- Enema: tap water or fleets; no phosphosoda enema in renal failure pt
- Lactulose: 30 cc PO q4-6h until BM; no lactulose unless r/o bowel obstruction

Cough

- Guaifenesin/Dextromethorphan or Codeine: 10 ml PO q4h prn
- Codeine 10-20 mg PO q4-6h prn
- Tessalon: 100-200 mg PO TID prn

Diarrhea: must evaluate the underlying cause first

- Loperamide: 4 mg initially, then 2 mg PO w/ each loose BM
- Pepto-Bismol: 30 mL PO q6h prn

Nausea and Vomiting: use w/ caution in pt w/ QT prolongation - MAY induce arrhythmia; consider placing a NTG and make the pt NPO

- Compazine: 5-10 mg IV q4-6h prn; 25 mg PR BID prn
- Phenergan: 25 mg PO/PR q4-6h prn
- Reglan: 10 mg IV q6h prn
- Zofran 4 mg IV q8h prn; 8 mg IV q8h if refractory (QT Prolongation)

Insomnia: avoid use in elderly pt - half minimum dose if you must order the meds

- Benadryl: 25 mg PO/IV q6h prn (avoid in the elderly)
- Sonata (Zaleplon): 5-10 mg PO qhs prn
- Trazodone: 25-50 mg PO qhs prn (can be used in the elderly)

Pruritus

- Benadryl: 25-50 mg PO q6-8h prn (avoid in the elderly)
- Allegra (Fexofenadine): 180 mg PO daily
- Atarax (Hydroxyzine) 15 mg PO q6-8h prn

DOCUMENTATION

H&P: to be done within 24 hours of admission

- Intern: 1) written H&P; 2) dedication
- Resident: modified written H&P

ICU Admission H&P/Consult Note: to be done within 24 hours of admission

- Intern: 1) written H&P (GME) or consult note (Private); 2) dictation
- Resident: modified written H&P (GME) or consult note (private)

Off-service Note: for all patients (ICU and wards)

- When Interns change rotations, off-services notes need to be done for patients who have been on the service for more than 48hrs. Off service notes must be written or typed using the yellow progress notes in the same format as a discharge summary, to assist your colleagues when they have to do the transfer/discharge summaries.

Transfer Note

From Ward to ICU

- Written note for patients who have been on the ward service for > 48 hours
- Written note AND a dictated note for patients who have been on the ward service for >1 week

From ICU to Ward

- Written note for patients who have been in ICU for > 48 hours
- Written note AND a dictated note for patients who have been in ICU for >1 week

Discharge Summary: to be done within 48 hours after the discharge

- See page 72

AMA Note: to be done within 24 hours of admission

- Dictated in same format as a discharge summary

Death Note

- Dictated in same format as a discharge summary

Fall Evaluation: for all patients in the hospital (private and GME services)

- Brief written note documenting the event, vitals, PE, assessment and plan.

X-cover Note: for all overnight X-cover events requiring intern or resident evaluation at the bedside

- Brief written note documenting the event, assessment and plan.

Code Blue Note:

- Brief written note documenting the code (reason, action taken, medications given, etc) and the outcome

Procedure Note:

- See page 74

Dictations

1. Dial Extension: Inside Hospital: 3033, Outside Hospital 888-252-0754
2. At prompt enter 4-digit User ID and then # key
3. At prompt enter Work type Number and then # key
 - H&P: 1
 - Consultation: 2
 - Discharge Summary: 4
 - Transfer Summary: 9
 - Death Summary: 41
4. At prompt enter 6-digit Medical Record Number and then # key
5. Press 2 to start Dictation

(Press 1 to pause dictation at any time, 2 to restart, 3 to rewind, 4 to fast forward)
(Please spell patient name, medical record number, your name, service/specialty)
6. Press 5 to end dictation, 8 to end dictation and start a new one, #9-mark job priority

ELECTRONIC SIGNATURE WEBSITE

<https://www.speechmachines.org>

All dictations need to be electronic signed

ADMISSION ORDERS

Check the Inpatient vs Observation box

Admit: Wards, Telemetry, ICU (if telemetry, need to write reason as to why pt needs tele, i.e. chest pain, atrial fib, etc.)

- Respiratory isolation, contact isolation, near nurses station

Resident and Intern name and beeper

Attending: *Please Specify. Write the Name of the GME Attending*

Consults: Make sure you call them first, but always write the order

Diagnosis:

Condition: Stable, Fair, Serious, Guarded, Critical

Vitals: routine, every shift, q2hrs

Call MD for: T>101.5, P>100 <60, SBP> 180 <90, UOP<30cc/hr, O2 sats <02%, CP, SOB

Allergies:

Activity: (ad lib, bedrest, bathroom privileges, up to chair BID/TID, assistance)

Nursing: Strict I+O, foley to gravity, neuro checks, pneumatic stockings, aspiration precautions, seizure precautions, daily wts, NGT: low wall suction, accuchecks (q4h, q6h, qAC/qHS)

Diet: regular, ADA 1800/2100kCal, 2 gm Na, 2.5 gm K, low cholesterol, 50 gm protein, cardiac, etc.

IV: saline lock or specify fluid type and rate

Meds: previous meds to be continued, new meds for current conditions, watch for unapproved abbreviations

PRN meds to consider:

- Tylenol 650 mg PO/PR q4hrs prn pain/fever (not in Tylenol OD or liver failure)
- Mylanta 30 cc PO q6hrs PRN heartburn (careful in renal failure)
- MOM 30 cc PO q6hrs PRN constipation (careful in renal failure)
- Compazine 10 mg PO/IM/IV or 25 mg PR q6hrs prn N/V or
- Phenergan 25 mg PO/IM/IV q6hrs prn N/V
- Restoril 7.5-30 mg PO qHS prn insomnia or Ativan 0.5-2 mg PO/IM/IV qhs prn insomnia (caution in elderly)
- Colace 100 mg PO bid (hold for loose stools)

* Make sure you fill out the medical reconciliation sheet (green sheet, complete it with patient's outpatient's medications)

DVT prophylaxis: Heparin 5000 units SC tid; Enoxaparin 40 mg SC qday; for patients at risk for bleeding consider intermittent pneumatic compressions or graduated compressions stockings.

GI Prophylaxis: Ranitidine 150 mg BID, Omeprazole 40 mg PO/IV daily, Protonix 40 mg IV daily, Prevacid 30 mg po daily

Oxygen (if needed; #L NC or % face mask or NRB)

Insulin sliding scale: (suggestion; consider ½ dosing if ESRD)

<u>Accucheck</u>	<u>insulin (regular, SubQ)</u>
<70	juice or 1 amp D50, call MD
71-150	nothing
151-200	2 units
201-250	4 units
251-300	6 units
301-350	8 units
351-400	10 units
401+	12 units, call MD

Stat labs:

AM labs:

Studies: cardiac tests, PFTs, radiology studies, etc.

Special: nutrition consult, wound care consult, diabetic education, social work or discharge planning, PT/OT...

HISTORY & PHYSICAL

Date of Admission:

Service: Internal Medicine/GME

Attending: Dr. _____

Resident: Dr. _____

Intern: Dr. _____

Chief Complaints: reason for seeking care

HPI (history of present illness): symptoms & duration

- **Provocative/Palliative** - precipitating/relieving
- **Quality/Quantity** - character
- **Region** - location/radiation
- **Severity** - constant/intermittent
- **Timing** - onset/frequency/duration

Review of Systems:

1. **general:** well nourished, fever, chills, night sweats, fatigue, weightchange
2. **head:** H/A, trauma, vertigo, syncope, seizures, memory
3. **eyes:** visual loss, diplopia, trauma, inflammation glasses
4. **ears:** deafness, tinnitis, discharge, pain
5. **nose:** discharge, obstruction, epistaxis
6. **mouth, throat:** sores, gingival bleeding, teeth, abn. taste, jaw pain, ST, hoarseness, voice changes, URI
7. **neck:** swelling/stiffness, adenopathy, goiter,
8. **breasts:** lumps, pain, nipple discharge, last mammogram
9. **CV (cardiovascular):** CP, palpitations, claudication peripheral edema, ascites, cold feet, phlebitis, cyanosis
10. **respiratory:** dyspnea, orthopnea, wheezing, cough, sputum, hemoptysis, pain, pleurisy, night sweats, TB, #pillows, pneumonia, asthma
11. **GI:** appetite/wgt change, dysphagia, N/V, hematemesis, BRBPR, melena, abd, pain/colic, icterus, diarrhea, constipation, change in bowels, tenesmus, hemorrhoids, rectal pain, hernia
12. **GU:** polyuria, oliguria, dysuria/strangury, hematuria, pyuria, incontinence, nocturia, pain passage of stones, UTI, pyelo & STD hx
13. **skin, hair, nails:** lesions, rashes, pruritis, changes in moles; change in distribution;
14. **lymph nodes:** enlargement, pain
15. **bones , joints muscles:** fractures, pain, stiffness, weakness, atrophy
16. **blood:** anemia, bruising
17. **endocrine:** polyphagia/dipsia/uria, dec. energy/fatigue

18. **Musculoskeletal** - arthralgia, arthritis, myalgia, joint stiffness/swelling/ heat/pain, podagra/gout
19. **Neuro: nervous:** smell, chewing, visual, facial weakness, hearing, balance, speech & swallowing, taste; **motor** - weakness, paralysis, atrophy, seizures, incoordination; **sensory** - pain, paresthesias, anesthesia
20. **autonomic:** incontinence, sweating, erythema, cyanosis, pallor, temp sensitivity
21. **mental status:** relations w family, lability of mood, hallucinations, delusions, depression, somnolence, insomnia

ER Course

Allergies

Medications: prescribed, OTC, and herbal

Past Medical History/Past Surgery

Social History

Family History

Review of Systems: Need 12 point ROS;

Vital Signs

Physical Examination

General; HEENT; CV; Lungs/Chest; Abdomen; Back; Extremities; Pelvis; Genitalia; Rectal; Skin; Neurologic; Lymphatic

Labs

Studies

Assessment

Plan

DISCHARGE SUMMARY

(Off-Service Note follows same format as appropriate)

****NEEDS TO BE DICTATED ON DAY OF DISCHARGE!****

Date of Admission:

Date of Discharge:

Service: Internal Medicine

Attending: Dr. _____

Resident: Dr. _____

Intern: Dr. _____

Consultants:

Admission Diagnoses:

List both the active diagnoses for which the patient was admitted and the historical conditions for which a prior diagnosis has been rendered . [e.g. HTN, HL, DM (Type II, Dx '09), Diabetic Gastroparesis, CAD (w/MI '09 s/p DES x2 in RCA and OM-1), and ESRD on HD (MWF); these would all constitute historical conditions which you would list]

If a specific diagnosis was not known at the time of admission, but symptoms were sufficiently problematic that they came to clinical attention, these symptoms should also be listed as a diagnosis (e.g. diarrhea). If possible, indicate the operating differential diagnosis for each such symptom on admission.

Discharge Diagnoses:

In this section, diagnoses made on admission should be re-listed (HTN, Hx of CVA, Hx of MI w/DES, etc) or listed as resolved (or else, why are they being discharged?). Be certain that any symptom based diagnosis listed on admission (i.e. CP, SOB, syncope) has a causative diagnosis rendered at the time of discharge (i.e. CP likely GERD, COPD Exacerbation – resolved/stable for discharge, syncope likely vasovagal). If no diagnosis is confidently made by the time of discharge, include your listed differential and be sure that the D/C summary includes some lab work (in the “Pertinent Labs/Studies” section) and documentation (in the “Brief Hospital Course” section) to substantiate your working differential/work-up and show that the patient is safe to be discharged. This would presumably also be necessary for the outpatient physician as a starting point for his/her work-up.

If an admission diagnosis is wrong, that diagnosis should still be listed here with a comment (like “ruled out”) and then identify the other diagnosis that explained their symptoms (it would be in your list of discharge diagnoses). Every item in your admission diagnosis list should be

reduplicated or addressed in your discharge diagnosis list, in addition to any further diagnoses that happened over the course of the patient's hospitalization.

Be aware that this summative document demonstrates your comprehension of the entirety of your patient's hospital course. It reflects your knowledge about your patient, their disease state, your role in their return to wellness, and their subsequent safe discharge. Without a correctly documented discharge summary, you will not be reimbursed by any insurance company for your work. Moreover, even if you are reimbursed, RAC Audits will reclaim funds from you if you cannot document your work appropriately. Therefore, as a competency for the practice of Internal Medicine, it is mandatory that you demonstrate the capacity to do this precisely with every patient encounter.

Pertinent Labs/Studies:

You should be able to read this directly from your sign-out.

Procedures:

As above for Labs/Studies.

Brief Hospital Course:

New Medications Upon Discharge:

- 1)
- 2)

Old Medications to be Continued:

- 1)
- 2)

Old Medications to be Discontinued and Reason:

- 1)
- 2)

** Include dosages and frequency of medications; if discharging with limited therapy of a medication, state duration*

Lab/Study Results Pending at Time of Discharge:

Discharge To: (home, SNF, LTAC, AMA, etc)

Discharge Condition: (should be "stable" unless pt leaving AMA or other unique circumstances)

Instructions/Follow-up: (include **diet, activity, follow-up** with PMD or specialists and "**return to ER**" instructions here).

** State that you told these instructions to the pt and he/she voiced his/her understanding.*

DEATH NOTE

First and foremost, be considerate to the patient and family throughout this process.

A nurse will call you to “pronounce” a patient if he/she cannot find a BP or pulse. Prior to starting, ask the family if they would prefer to remain inside the room as you perform your exam. Check for the following: unresponsive to physical stimuli, pupils fixed and dilated, no carotid, or femoral pulses, no heart tones, no respiratory effort or breath sounds.

If the patient is indeed dead, speak to the family if they are available and give them time with the patient if desired. Take note of any autopsy wishes. If family are unavailable, the nurses will usually contact them for you. They may also contact the PMD to notify them of the patient’s death. Otherwise, you are responsible for notifying the PMD.

Document as follows

“Called by RN to see pulseless and apneic patient. Patient was found to have fixed, dilated pupils. Physical exam confirms that the patient is unresponsive to physical/painful stimuli, apneic, pulseless, and without heart sounds. The patient is pronounced dead at ____am/pm on day/month/year. Family was notified/at bedside. Family desires/refuses autopsy. Dr. ____ notified.”

Paperwork

- Death note as above
- Death summary should be dictated by the regular resident or PMD
- Ask the nurses for the paperwork that needs to be filled out immediately, particularly if autopsy planned.
- *****You must list the primary physician in the death package ASAP!!!! Even if you are the cross covering resident.*** Delays in identifying the primary doctor result in patient’s not being buried in a timely manner. If you are unsure who the primary doctor is (GME attending, Private physician, or Intensivist) ask some one and list this information immediately!!**
- **YOU must fill out the completed Death certificate (by the primary resident, not by any covering residents) for GME patients; do not fill out the death certificate for patients of private attendings.** If not obtain the Certificate and give it to the Attending Physician.
- This is a preliminary form; it is later transcribed into a typed format and sent to the listed attending for a signature. What matters is that you have filled out the causes of death, time of death, duration of care, **correct primary attending**, etc appropriately.
- The rest of the paperwork (what to do with the remains, funeral home, etc.) is handled by the nurses.

PROCEDURE NOTE

(A good website for procedure notes: http://swimed.org/procedure_notes.php)

Date/Time:

Procedure:

Indication:

Physician doing procedure: also include supervising physician if applicable

Consent (Always Needs to be Obtained): Inform patient of procedure, Risks/Benefits/Alternatives, patient understands information and agreed to proceed with the procedure, consent signed in chart

Description:

Complications/Estimated Blood Loss:

Disposition:

ACUTE INPATIENT REHAB

Medical conditions requiring intensive rehabilitation services (according to Medicare)

1. Stroke
2. Spinal Cord Injury
3. Congenital Deformity
4. Amputation
5. Major multiple trauma
6. Femur (Hip) Fracture
7. Brain injury (traumatic and non-traumatic)
8. Neurological disorders – multiple sclerosis, motor neuron diseases (ALS, primary lateral sclerosis, spinal muscular atrophy)
9. BurnsActive polyarticular rheumatoid arthritis, psoriatic arthritis and other seronegative arthropathies resulting in significant functional impairment
- 10.Systemic vasculidities with joint inflammation, resulting in functional limitations.
- 11.Severe or advanced osteoarthritis involving two or more major weight bearing joints (joint replaced by prosthesis does not count)
- 12.Knee or hip replacement, or both, during an acute hospitalization immediately preceding the inpatient rehab stay and also meeting one or more of the following specific criteria:
 - a. BILATERAL knee or hip replacements
 - b. Extreme obesity (BMI at least 50)
 - c. Age 85 years or older

2008: Medicare 60% rule – 60% of all patients discharged from an inpatient rehabilitation facility were required to fall into the above listed diagnostic criteria

Other criteria

1. There has been a significant decline in patient's baseline level of function
2. Patient requires at least 2 different disciplines of therapy, (PT, OT, or ST) and is able to tolerate 3 hours of daily therapies.
3. Patient must be insured/have funding. Estimated cost of stay in acute rehab is \$4000/day
4. There is an appropriate discharge plan in place – home or community setting (assisted living, board and care). CANNOT be homeless.
5. Patient's mental and physical condition prior to the illness/injury indicates that there is potential for significant improvement
6. There has been a clear diagnosis and co-morbidities have been established.
7. Patient's medical condition must be stable, meaning diagnostic testing and therapeutic interventions are completed. (Please remember that the hospital is paid a lump sum for patient's stay in acute rehab which is based on patient's admission diagnosis and co-morbidities. Any testing (labs, MRIs, procedures, or transfusions) performed while patient is in rehab is deducted from this lump sum.)
8. There must be documented daily progress in therapies.
9. Services rendered to patient cannot be provided at a lower level of care.

SMMC PAIN MANAGEMENT GUIDE

OPIOID EQUIANALGESIC GUIDE

	DRUG	USUAL STARTING DOSES (For adults >50kg; opioid naïve) #: for elderly or severe renal/liver disease		EQUIANALGESIC DOSE		COMMENTS	
		PARENTERAL	PO	IV/IM	PO		
Moderate to Severe	Morphine	2.5-5 mg IV/IM q3-4h (# 1.25-2.5 mg)	0.05-0.07 mg/kg	5-15 mg IR q3-4h	5 mg	15 mg	Onset of action: IV/IM= 15-30 min; PO=30-60 min Oral Solution (1mg/ml) ER caps (15, 30, 100mg)- use for chronic pain Not recommended in renal failure.
	Hydromorphone (Dilaudid)	0.2-0.6 mg IV/IM/SC q2-3h (# 0.2 mg)	0.01-0.014 mg/kg	1-2 mg q3-4h (# 0.5-1 mg)	0.75 mg	3.75 mg	Tablet (2, 4mg) Use with caution in renal failure.
	Fentanyl	25-50 mcg IV/IM q1-3h (# 12.5-25 mcg)	0.5 mcg/kg	---	75 mcg	---	Alternative to patients allergic to morphine and hydromorphone Best choice in setting of renal failure.
	Oxycodone (Percocet; Oxycontin)	---	---	5-10 mg q3-4h IR (# 2.5 mg)	---	10 mg	w/APAP (5, 7.5, 10mg) ER caps (10, 20, 40mg)-use for chronic pain Use only if failure or CI to morphine ER.
Mild-Mod	Codeine	---	---	30-60 mg q3-4h (#15-30 mg)	65 mg	100 mg	w/APAP 325mg (30mg); Elixir 12mg and 120mg APAP/5ml
	Hydrocodone (Vicodin; Norco)	---	---	5 mg q3-4h (# 2.5 mg)	---	15 mg	w/ APAP 325mg (5, 7.5, 10mg) Hydrocodone/APAP elixir 7.5-500mg/15mL

NON-OPIOID DOSING GUIDE

	DRUG	DOSE	MAX DOSE/DAY*	COMMENTS
Mild-Moderate	Acetaminophen	650 mg PO/PR q4h prn For <50kg, 15mg/kg IV q6h For ≥50kg, 1 gm IV q6h	4 g	Caution in alcoholism and liver disease Infuse IV over 15 minutes <i>Restricted</i> for immediate post-op use x24 hours for tx of post-op pain, <i>or</i> <i>Restricted</i> to patients who require antipyretic or analgesic relief when oral, feeding tube, or rectal administration is not appropriate.
	Ibuprofen	400-600 mg PO q6h prn	3.2 g	If h/o of dyspepsia, combine NSAID with PPI, H2 blocker If h/o UGIB, avoid if possible. If not, add PPI/misoprostol or use celecoxib +/- PPI/misoprostol If high CV risk, consider naproxen. Avoid celebrex. Avoid NSAIDs in patients with CHF or renal disease
	Naproxen	250 mg PO q6, 8, or 12h	1.25g	
	Ketorolac	15-30mg IV/IM q6h (5 days max)	120 mg	
Celecoxib	100-200 mg PO BID	---		
Severe	Tramadol	25-100 mg PO q4h prn	400mg	

*Maximum doses based on normal renal and hepatic function and non-elderly population

ADJUVANT THERAPY DOSING GUIDE

CLASS	DRUG	DOSE	COMMENTS
Anticonvulsants	Gabapentin	<p>Starting dose:</p> <ul style="list-style-type: none"> - Routine: 100-300 mg PO TID - Elderly, medically frail: 100-300 mg PO qhs - Renal insufficiency (CrCL 15-60 ml/min): 100-200 mg PO qhs - Renal failure (CrCL < 15 ml/min): 100 mg PO qhs <p>Usual effective dose:</p> <ul style="list-style-type: none"> - Routine: 900-3600 mg PO daily in 2-3 divided doses - Elderly, medically frail, renal insufficiency: 300-1800 mg PO daily - Renal failure: 100-300 mg PO qhs <p>Titrate by 50-100% dose every 3-7 days (slower in elderly, medically fragile, and renal insufficiency)</p>	<p>Reduce dose in patients with renal dysfunction</p> <p>Adverse effects:</p> <ul style="list-style-type: none"> - Dose-dependent dizziness, ataxia, sedation, diplopia - Nausea, dyspepsia, weight gain, peripheral edema
	Pregabalin (Lyrica)	<p>Starting dose: 50 mg PO TID</p> <p>Increase to 300 mg/day after 3-7 days.</p> <p>Then titrate by 150 mg/day every 3-7 days as tolerated.</p> <p>Maximum: 300-600mg PO daily (based on indication)</p>	<p>Reduce dosage in renal impairment</p> <p>Provides quicker analgesia than gabapentin because initial dose is shown to be efficacious, and the time to titrate to a full dosage is less.</p>
Tricyclic Antidepressants	Amitriptyline Nortriptyline Desipramine	<p>Starting dose: 10-25mg PO qhs</p> <p>Usual effective dose: 50-150mg PO qhs</p>	<p>Adverse effects: sedation, weight gain, orthostasis, tachycardia, arrhythmia, dry mouth, blurred vision, constipation, urinary retention, delirium</p>
SNRI	Duloxetine (Cymbalta)	<p>Starting dose: 20-30mg PO daily</p> <p>Target dose: 60mg PO daily</p>	<p>Adverse effect: nausea (dose related, start dose low and titrate)</p>
Topical anesthetic	Lidocaine patch (Lidoderm) 5%	(1-3 patches) topically q12h on, 12h off	

ASSESSMENT AND APPROACH

- Evaluate pain on all patients using a 0-10 scale and identify patient's pain goal. Mild pain: 1-3. Moderate pain: 4-7. Severe pain: 8-10
- Use a **multi-modal drug approach** (combine opioids, non-opioids, and adjuvant analgesics), when appropriate.

TITRATING DOSES (due to inadequate baseline pain control)
<ul style="list-style-type: none"> • Total amount of opioid taken in the last 24 hours (breakthrough + maintenance doses): _____ mg/day <ul style="list-style-type: none"> ○ If taking multiple opioids, convert all to morphine equivalents • Increase by 25% if patient is still experiencing mild pain (<4): (_____ %) = _____ mg/day • Increase by 25-50% if patient is still experiencing moderate pain (4-7): (_____ %) = _____ mg/day • Increase by 50-100% if patient is still experiencing severe pain (>7): (_____ %) = _____ mg/day

BREAKTHROUGH DOSING
<ul style="list-style-type: none"> • 10-15% of total 24 hours baseline dose (_____ %) = _____ mg/day <ul style="list-style-type: none"> ○ IV: given as q 15min ○ PO: given as q 1hr

CHANGE OPIOIDS/ROUTE OF ADMINISTRATION
<ul style="list-style-type: none"> • Total amount of opioid taken in the last 24 hours (breakthrough + maintenance doses): _____ mg/day • Calculate equianalgesic dose: _____ mg/day of _____ = _____ mg/day of _____ • Account for incomplete cross tolerance by initiating at 25-50% of dose: (_____ %) = _____ mg/day

GENERAL PAIN MANAGEMENT GUIDELINE

PAIN SOURCES	PAIN CHARACTERISTICS	TREATMENT OPTIONS
Somatic Pain	Constant and well localized	Acetaminophen/NSAIDs Opioids
Visceral Pain	Injury to sympathetically innervated organs. Pain is vague in quality. Deep, dull, aching, referred pain.	NSAIDs Corticosteroids Opioids
Bone Pain	Axial skeleton with thoracic and lumbar spine most common	NSAIDs Corticosteroids/Bisphosphonates Radiation Therapy, Radionuclides Opioids
Neuropathic Pain Nerve Damage Dysesthesia	Results from damage to peripheral or central nervous system or both. Dysesthesia, burning, tingling, numbing, shooting electrical pain.	Anticonvulsants Tricyclic Antidepressants SNRIs Corticosteroids Topical Anesthetic Opioid (use while waiting for adjuvant therapies to reach its effectiveness. NOT a primary treatment option)
Musculoskeletal Pain	From muscles, tendons and ligaments along with the bones.	Muscle relaxants (cyclobenzaprine; baclofen)-- AVOID Soma Tizanidine Benzodiazepines

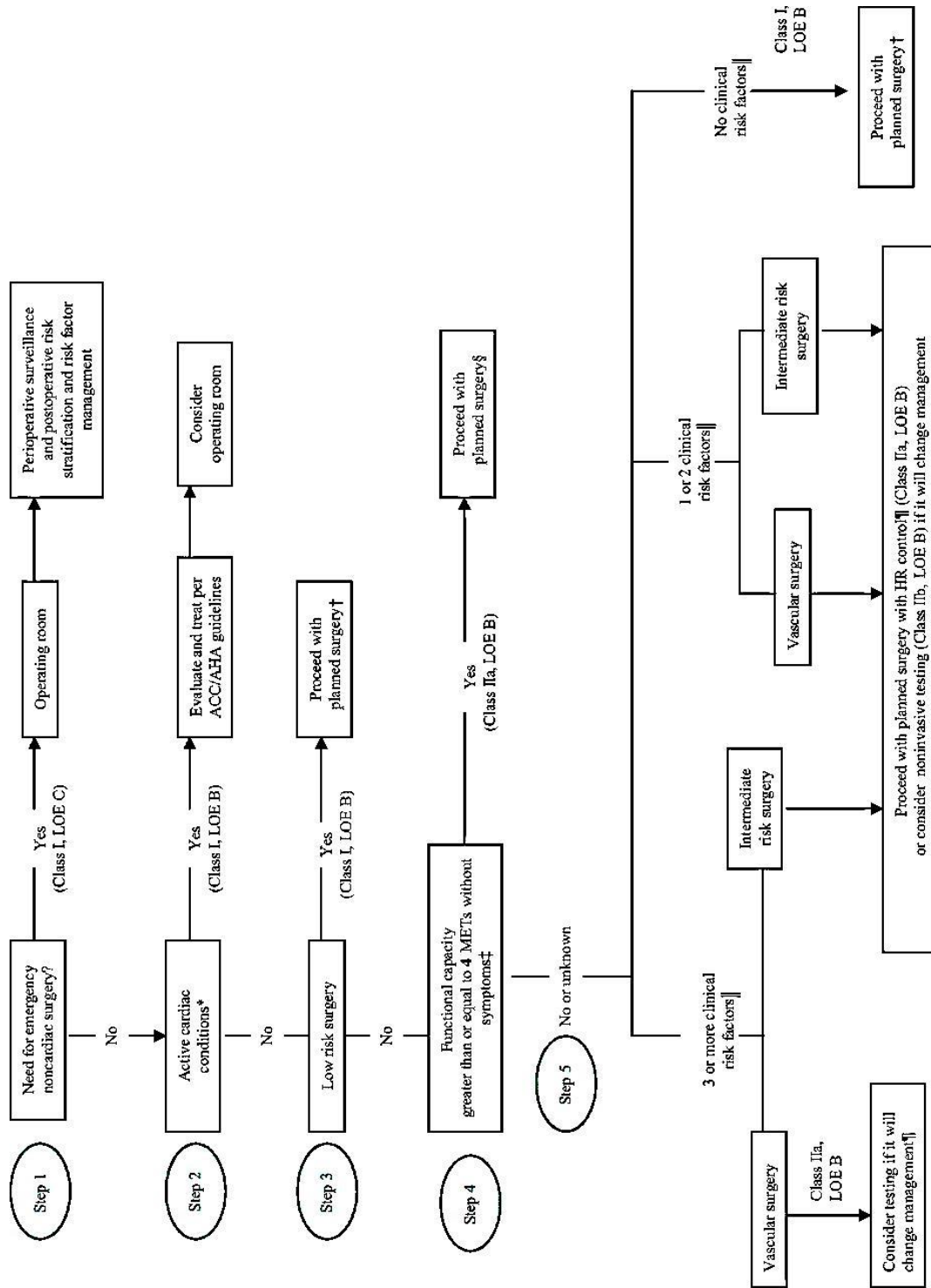
OPIOID SIDE EFFECTS MANAGEMENT

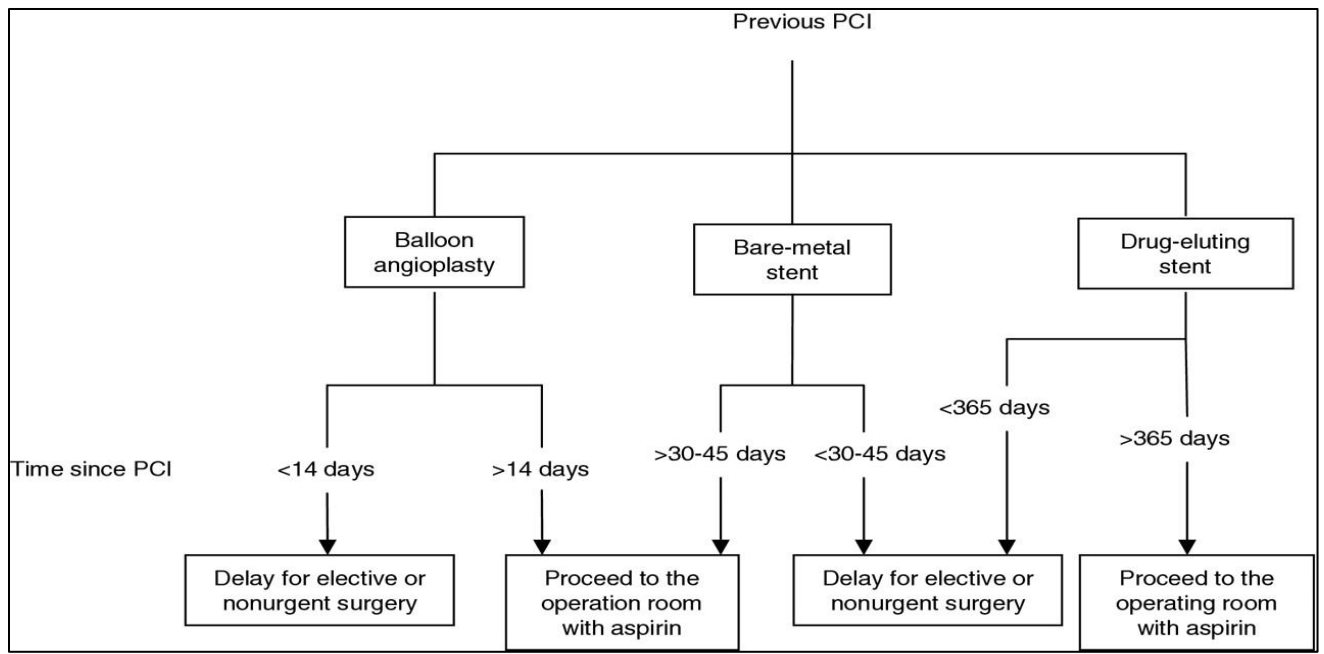
OPIOID SIDE EFFECTS	MANAGEMENT
Constipation	Tolerance to opioid related constipation does NOT occur. Start with docusate plus senna (50mg-8.6mg) 2 tablets once daily up to 4 tablets twice daily. If no bowel movement in 2days, add a laxative (bisacodyl tablets or suppository, lactulose, milk of magnesia, polyethylene glycol). Encourage fluids and activity.
Nausea/Vomiting	Rule out reversible causes (i.e., constipation). Prochlorperazine PO/PR/IV, ondansetron IV. May add metoclopramide IV/PO, haloperidol IM/PO.
Sedation	<p>Assess and manage based on Pasero Opioid-induced Sedation Scale (POSS)</p> <p>S = Sleep, easy to arouse Acceptable; no action necessary; may increase opioid dose if needed</p> <p>1 = Awake and alert Acceptable; no action necessary; may increase opioid dose if needed</p> <p>2 = Slightly drowsy, easily aroused Acceptable; no action necessary; may increase opioid dose if needed</p> <p>3 = Frequently drowsy, arousable, drifts off to sleep during conversation Unacceptable; monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory; decrease opioid dose 25% to 50%; consider administering a non-sedating, opioid-sparing nonopioid, such as acetaminophen or a NSAID, if not contraindicated.</p> <p>4 = Somnolent, minimal or no response to verbal and physical stimulation Unacceptable; stop opioid; consider administering naloxone; monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory.</p>
Respiratory Depression	<p>Screen patients for respiratory depression risk factors and monitor closely.</p> <p>Risk factors include: Sleep apnea or sleep disorder diagnosis; Morbid obesity with high risk for sleep apnea; Snoring; Older age (increased risk after 61); No recent opioid use; Post surgery particularly if upper abdominal or thoracic surgery; Increased opioid dose requirement or opioid habituation; Longer length of time receiving general anesthesia during surgery; Receiving other sedating drugs, such as benzodiazepines, antihistamines, sedatives or other CNS depressants; Pre-existing pulmonary or cardiac disease or dysfunction or major organ failure; Thoracic or other surgical incisions that may impair breathing; Smoker</p>
Localized itch/generalized flushing	Reaction due to histamine release and may be confused with true allergic reaction (which is rare). Most common with morphine. Give antihistamines (diphenhydramine). Consider dose reduction if possible or switching to another opioid.

ANTIBIOTIC RULER: EMPIRIC THERAPY GUIDELINES FOR 2013

Infection	First Choice	Alternative (PCN or CEPH allergy)
Community Acquired Pneumonia** non-ICU	Ceftriaxone 1 gm IV q24h + Azithromycin [^] 500mg PO/IV q24h or Ceftriaxone 1 gm IV q24h + Doxycycline 100 mg PO/IV BID	Levofloxacin [^] 750 mg IV/PO q24h
	ICU Ceftriaxone 1 gm IV q24h + Azithromycin 500mg IV q24h or Ceftriaxone 1 gm IV q24h + Levofloxacin 750mg IV q24h	Levofloxacin 750 mg IV/PO q24h + Aztreonam 2 gram IV q8h
Aspiration Pneumonia** CAP	Ceftriaxone 1 gm IV q24h + Metronidazole 500 mg IV q8h	Levofloxacin 750 mg IV Q24H + Metronidazole 500 mg IV q8h
	Nosocomial Zosyn 4.5 gm IV q8h EI* + Levofloxacin 750 mg IV Q24H	
Healthcare Associated Acquired Pneumonia (patient from a SNF/LTC)	Zosyn 4.5 gm IV q8h EI or Cefepime 2 gm IV q8-12h + Azithromycin 500mg IV q24h + Tobramycin per Rx ± Vancomycin per Rx	Levofloxacin 750 mg IV q24h + Aztreonam 2 gm IV q8h + Tobramycin per Rx ± Vancomycin per Rx
JTI	Uncomplicated Cefpodoxime 100 mg PO q12h or Ceftriaxone 1 gm IV q24h	Levofloxacin 250 mg PO q24h
	Complicated Ceftriaxone 1 gm IV q24h ± Tobramycin per Rx	Levofloxacin 750 mg IV q24h ± Tobramycin per Rx
	Uncomplicated ESBL EColi Fosfomycin 3 gm PO x1@ <small>(may repeat course x1 in 1 week)</small>	Fosfomycin 3 gm PO x1@ <small>(may repeat course x1 in 1 week)</small>
Sepsis of Unknown Etiology	Cefepime 2 gm IV q8h or Zosyn 4.5 gm IV q8h EI ± Tobramycin per Rx or Levofloxacin 750 mg IV q24h ± Vancomycin per Rx	Levofloxacin 750 mg IV q24h + Tobramycin per Rx ± Vancomycin per Rx
Intra-Abdominal Sepsis / Cholecystitis	CA Mild-Moderate Ceftriaxone 2 gm IV q24h + Metronidazole 500mg IV q8h	Levofloxacin 750 mg IV q24h + Metronidazole 500mg IV q8h
	CA Severe Cefepime 2gm IV q8h + Metronidazole 500mg IV q8h + Ampicillin 2gm IV q4h or q6h	Levofloxacin 750 mg IV q24h + Metronidazole 500mg IV q8h + Vancomycin per Rx
	Healthcare Associated Zosyn 4.5 gm IV q8h EI	Aztreonam 2gm IV q8h + Metronidazole 500mg IV q8h + Vancomycin per Rx
Endocarditis^{oo}	Native Valve (Oral source) The addition of Gentamicin* is optional (see remarks below) Vancomycin per Rx + Ceftriaxone 2 gm IV q24h	Vancomycin per Rx + Gentamicin per Rx*
	(IVDA / IV catheter) Vancomycin per Rx + Oxacillin 2 gm IV q4h	
	Prosthetic Valve *Gentamicin is optional in native valve IE and its addition is considered controversial. Possible consideration in the following situations: 1) left-sided endocarditis 2) non-elderly adults with normal renal function, 3) vancomycin MIC of >1 mg/L Vancomycin per Rx + Gentamicin per Rx + Rifampin 600 IV/PO q24h (or 300 q8h)	Vancomycin per Rx + Gentamicin per Rx + Rifampin 600 IV/PO q24h (or 300 q8h)
Meningitis^{oo}	18-50 yo Ceftriaxone 2 gm IV q12h + Vancomycin per Rx +/- Ampicillin 2 gm IV q4h† + Dexamethasone 0.15 mg/kg IV q6h 10-20 min before or with the 1 st dose of antibiotics	Vancomycin per Rx + Chloramphenicol IV 50 mg/kg/day (given q6h – max 4 gm/day) +/- Bactrim IV 15-20 mg/kg/day (given q6-8h)† + Dexamethasone
	> 50 yo Vancomycin per Rx + Ampicillin + Ceftriaxone + Dexamethasone	† add if Listeria suspected
	Immunocompromised Vancomycin per Rx + Ampicillin + Cefepime 2gm IV q8h	Vancomycin per Rx + Aztreonam 2 gm IV q8h +/- Bactrim†
Value of dexamethasone in adults (Reference 12): The IDSA Committee believes that dexamethasone should be initiated in all adult patients with suspected or proven pneumococcal meningitis because calculation of the GCS score may delay therapy and the etiology of meningitis is not always ascertained at initial evaluation. It should only be continued if the CSF Gram stain or culture results are positive for <i>S. pneumoniae</i> . Dexamethasone should be given for 2-4 days. Of note, dexamethasone should not be given to adults who have already received antimicrobial therapy because it is unlikely to improve patient outcome.		
Pelvic Inflammatory Disease	Cefotetan 2gm IV q12h + Doxycycline 100mg PO/IV bid (evaluate and treat sex partner)	Clindamycin 900mg IV q8h + Gentamicin per Rx
Diabetic Foot Infection	Mild Bactrim DS BID PO	Clindamycin 450 mg PO QID or Doxycycline 100mg PO BID
	Moderate Augmentin 850mg BID PO + Bactrim DS BID or Unasyn 3 gm IV q6h + Bactrim IV (5 - 10 mg/kg/day)	Levofloxacin 750 mg PO/IV q24h + Clindamycin PO/IV
	Severe Zosyn 4.5 gm IV q8h + Vancomycin per Rx	Levofloxacin 750 mg PO/IV q24h + Clindamycin 600 mg IV q8h + Vancomycin per Rx
Clinical Classification (Ref 14): Mild = presence of ≥ 2 manifestations of inflammation (purulence, erythema, pain, tenderness, warmth, or induration), but cellulitis/erythema extends ≤ 2 cm around the ulcer and infection is limited to the skin or superficial SQ tissues; no other local complications or systemic illness Moderate = Infection (as above) in a patient who is systemically well and metabolically stable but has ≥ 1 of the following: cellulitis > 2 cm, lymphangitic streaking, spread beneath the superficial fascia, deep-tissue abscess, gangrene, & involvement of muscle, tendon, joint or bone Severe = Infection in a patient with systemic toxicity or metabolic instability (e.g. fever, chills, tachycardia, hypotension, confusion, vomiting, leukocytosis, acidosis, severe hyperglycemia, or azotemia)		

ACC/AHA GUIDELINES ON PERIOPERATIVE CARDIOVASCULAR EVALUATION AND CARE FOR NONCARDIAC SURGERY





ACC/AHA Guidelines on Perioperative Cardiovascular Evaluation and Care for Noncardiac Surgery. JACC 2007;50(17):1707-1732.

Surgical Risk

High (>5%)

- Emergency (esp. elderly)
- Extensive w large volume shifts
- Prolonged surgery (>5 hrs)
- Most neurosurgery
- Aortic/Peripheral vascular (suprainguinal)

Intermediate (1-5%)

- Carotid endarterectomy
- Peripheral vascular (infrainguinal)
- Head and neck
- Orthopedic
- Abdominal/GYN
- Urologic
- Thoracic

Low (<1%)

- Cataract
- Breast lumpectomy
- Endoscopy
- Superficial biopsy

Exercise Tolerance

1 met (poor)

- Eat, dress, use toilet
- Walk indoors around house
- Walk on level ground at 2 mph
- Light housework, wash dishes

4 mets (fair)

- Climb one flight of stairs
- Walk on level ground at 4 mph
- Run a short distance
- Vacuum, lift furniture
- Golf, doubles tennis, dancing

10 mets (excellent)

- Swimming
- Singles tennis
- Basketball
- Skiing

Active Cardiac Conditions

- Recent MI (7 to 30 days) with evidence of ischemic risk on basis of clinical symptoms or results of noninvasive studies
- Unstable or severe angina (including stable angina among patients unusually sedentary, DOE)
- Marked arrhythmias (eg. with hemodynamic instability, high-degree heart block, symptomatic VT, SVT w uncontrolled rate (HR>100))
- Severe valvular disease (eg. AS with valve area <1 cm² or symptomatic MS)
- Decompensated heart failure (NYHA class IV; worsening, or new-onset)

Clinical Risk

Factors

- Hx of heart disease
- Hx of CVA, TIA
- Compensated /prior CHF
- DM
- CKD (Cr ≥ 2)

RCRI

- High risk surgery
- CAD
- Hx of CVA, TIA
- Hx of CHF
- DM requiring insulin
- CKD (Cr ≥ 2)

Impression

Age () (male/female) with (high/intermediate/low) likelihood of coronary artery disease based on the following risk factors: (diabetes mellitus/HTN/hyperlipidemia/tobacco use/Family Hx/postmenopausal) with (excellent/fair/poor) exercise tolerance, awaiting (high/intermediate/low) risk surgery. Patient (with/without) active cardiac conditions and with (0,1,2, ≥3) clinical risk factors.

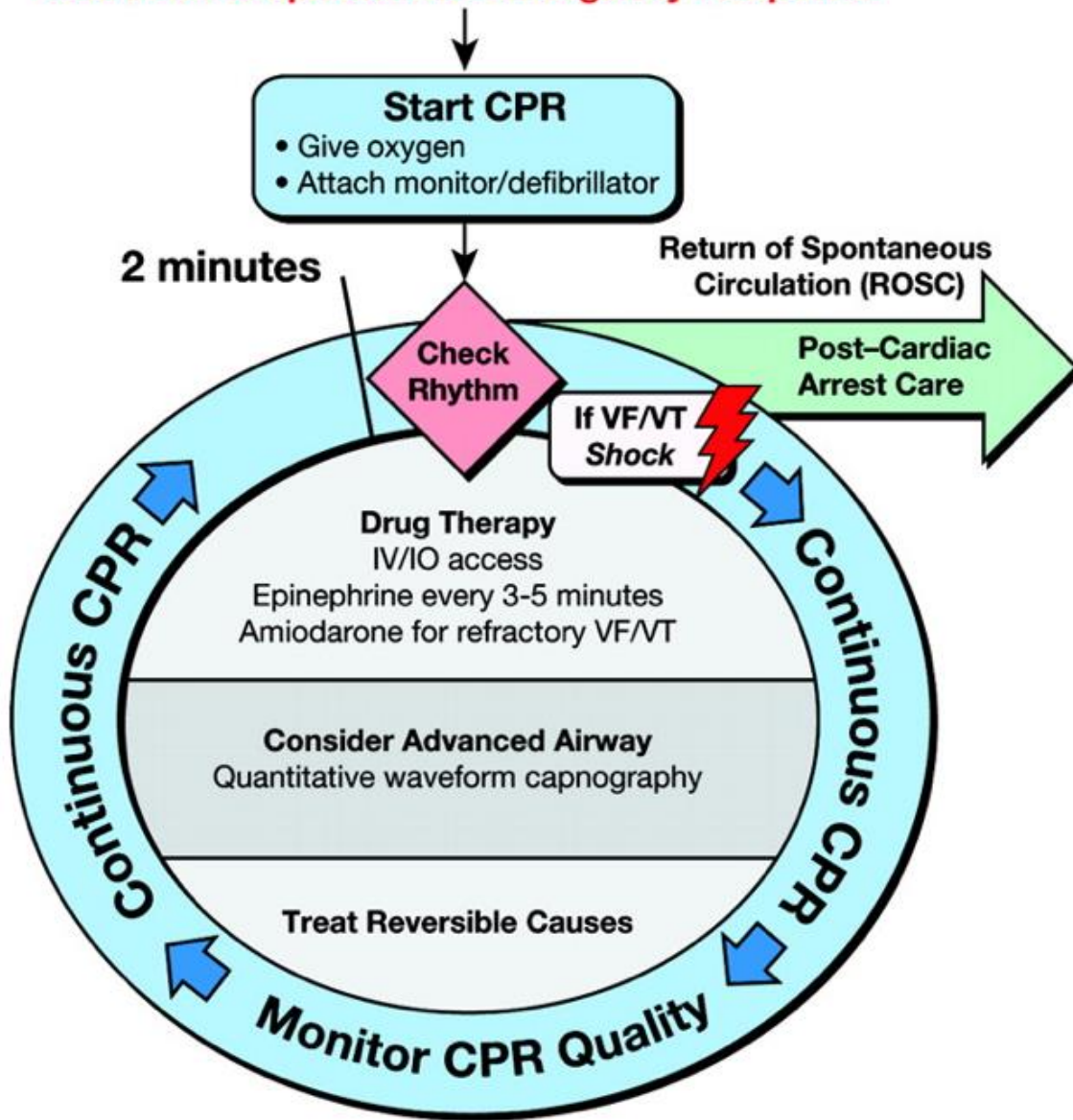
RCRI score : [] 0 (0.4%) [] 1 (0.9%) [] 2 (6.6%) [] ≥ 3 (11%)

With regards to cardiovascular risk stratification:

- [] Patient may proceed to surgery without further cardiovascular risk stratification
- [] Patient requires further cardiovascular risk stratification
- [] Recommend perioperative: (β-Blocker, Statin, Alpha-2 Agonist)
- [] DVT prophylaxis
- [] Infective endocarditis prophylaxis
- [] Incentive spirometry
- [] Perioperative medication recs:
 - DM medications
 - Anticoagulation/antiplatelet medications
 - Stress-dose steroids
- [] Other recommendations:
- [] CHC referral
- [] Re-refer to clinic as necessary by paging 5528
- [] Patient scheduled in General Medicine Clinic on:

ACLS

Shout for Help/Activate Emergency Response



© 2010 American Heart Association

CPR Quality

- Push hard (≥ 2 inches [5 cm]) and fast (≥ 100 /min) and allow complete chest recoil
- Minimize interruptions in compressions
- Avoid excessive ventilation
- Rotate compressor every 2 minutes
- If no advanced airway, 30:2 compression-ventilation ratio
- Quantitative waveform capnography
 - If $PETCO_2 < 10$ mm Hg, attempt to improve CPR quality
- Intra-arterial pressure
 - If relaxation phase (diastolic) pressure < 20 mm Hg, attempt to improve CPR quality

Return of Spontaneous Circulation (ROSC)

- Pulse and blood pressure
- Abrupt sustained increase in $PETCO_2$ (typically ≥ 40 mm Hg)
- Spontaneous arterial pressure waves with intra-arterial monitoring

Shock Energy

- **Biphasic:** Manufacturer recommendation (eg, initial dose of 120-200 J); if unknown, use maximum available. Second and subsequent doses should be equivalent, and higher doses may be considered.
- **Monophasic:** 360 J

Drug Therapy

- **Epinephrine IV/IO Dose:** 1 mg every 3-5 minutes
- **Vasopressin IV/IO Dose:** 40 units can replace first or second dose of epinephrine
- **Amiodarone IV/IO Dose:** First dose: 300 mg bolus. Second dose: 150 mg.

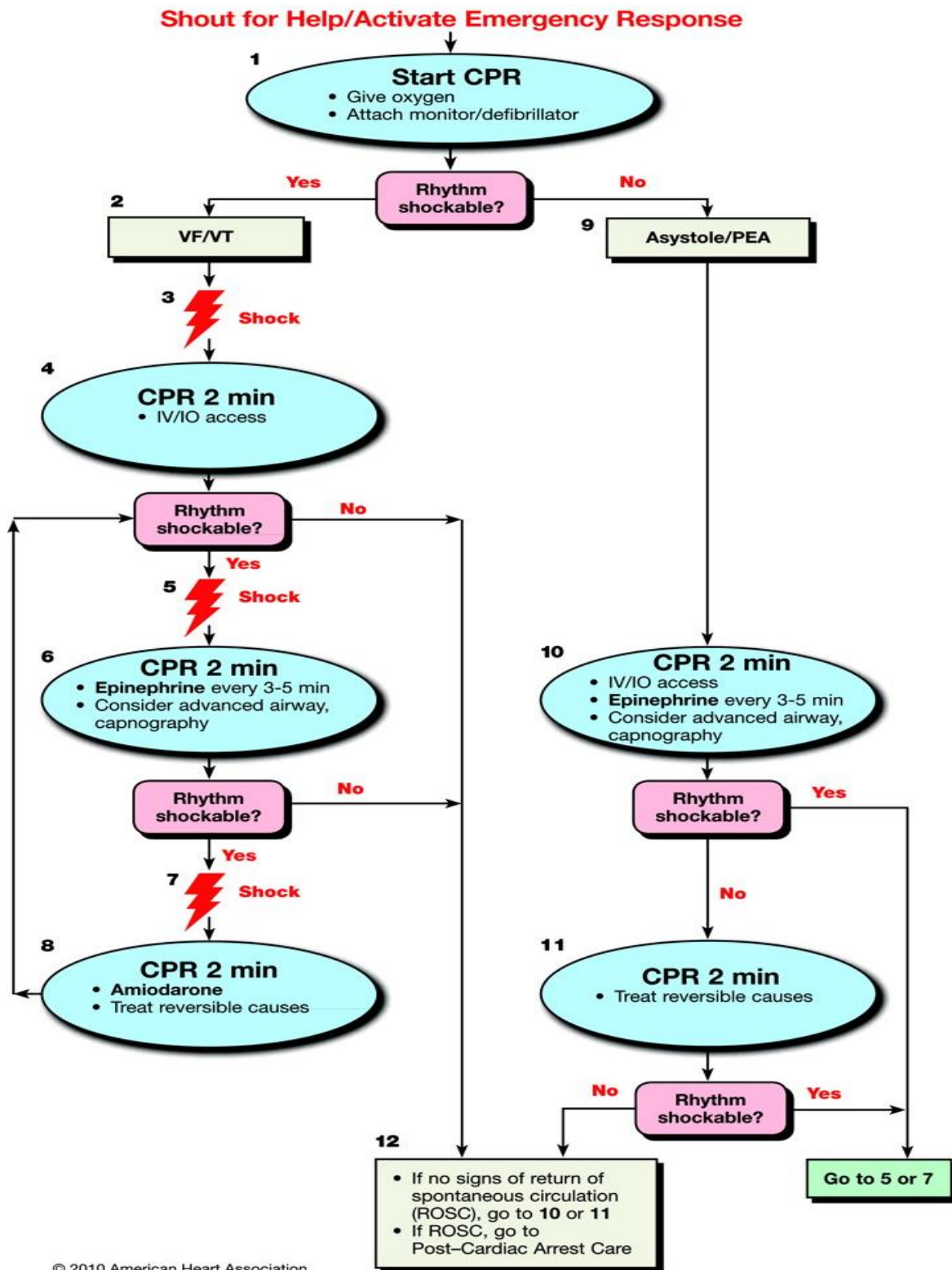
Advanced Airway

- Supraglottic advanced airway or endotracheal intubation
- Waveform capnography to confirm and monitor ET tube placement
- 8-10 breaths per minute with continuous chest compressions

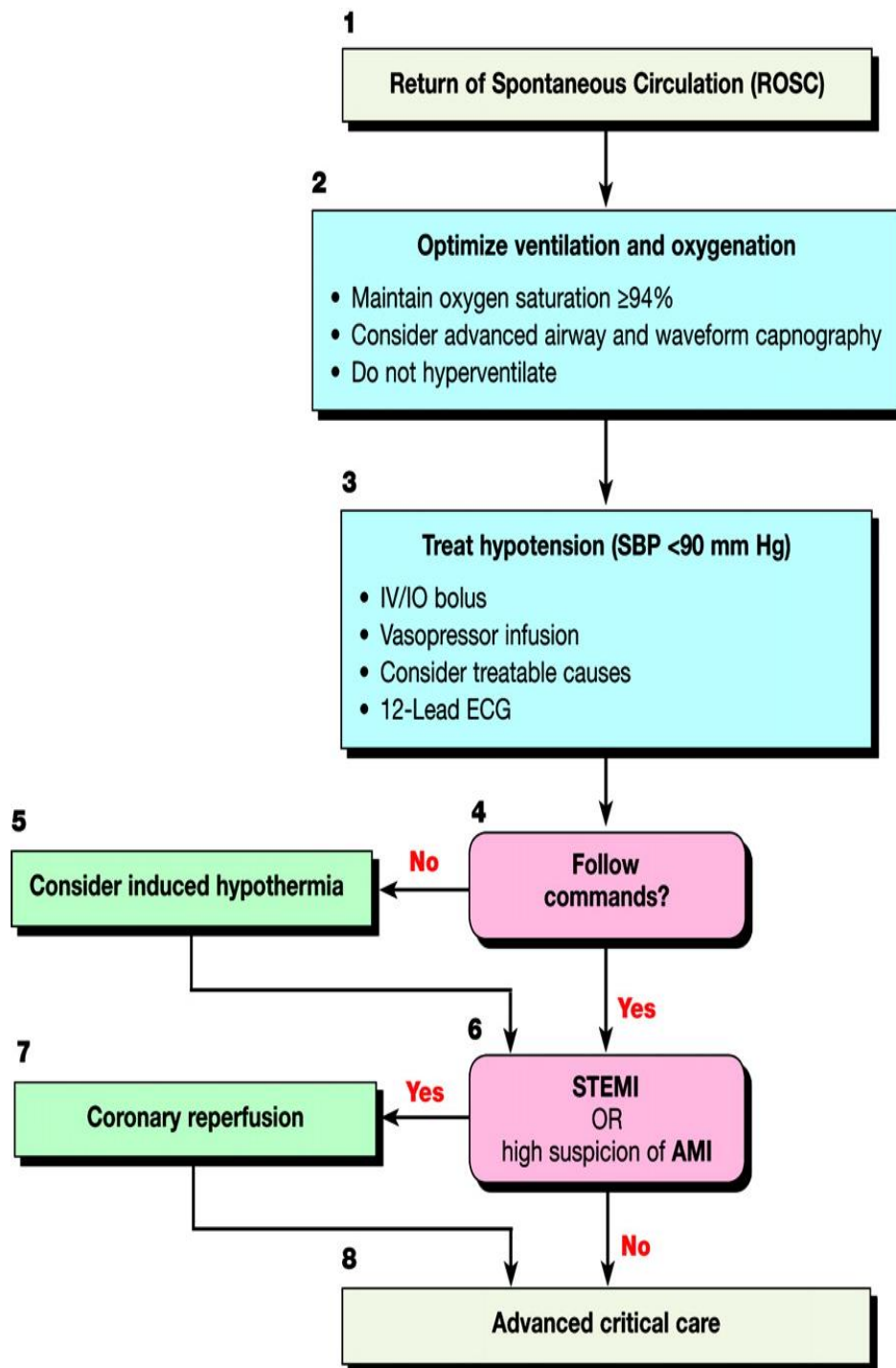
Reversible Causes

- | | |
|---------------------------|-------------------------|
| – Hypovolemia | – Tension pneumothorax |
| – Hypoxia | – Tamponade, cardiac |
| – Hydrogen ion (acidosis) | – Toxins |
| – Hypo-/hyperkalemia | – Thrombosis, pulmonary |
| – Hypothermia | – Thrombosis, coronary |

ADULT CARDIAC ARREST



ADULT IMMEDIATE POST-CARDIAC ARREST CARE



Doses/Details

Ventilation/Oxygenation
 Avoid excessive ventilation. Start at 10-12 breaths/min and titrate to target PETCO₂ of 35-40 mm Hg. When feasible, titrate FIO₂ to minimum necessary to achieve SpO₂ ≥94%.

IV Bolus
 1-2 L normal saline or lactated Ringer's. If inducing hypothermia, may use 4°C fluid.

Epinephrine IV Infusion:
 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

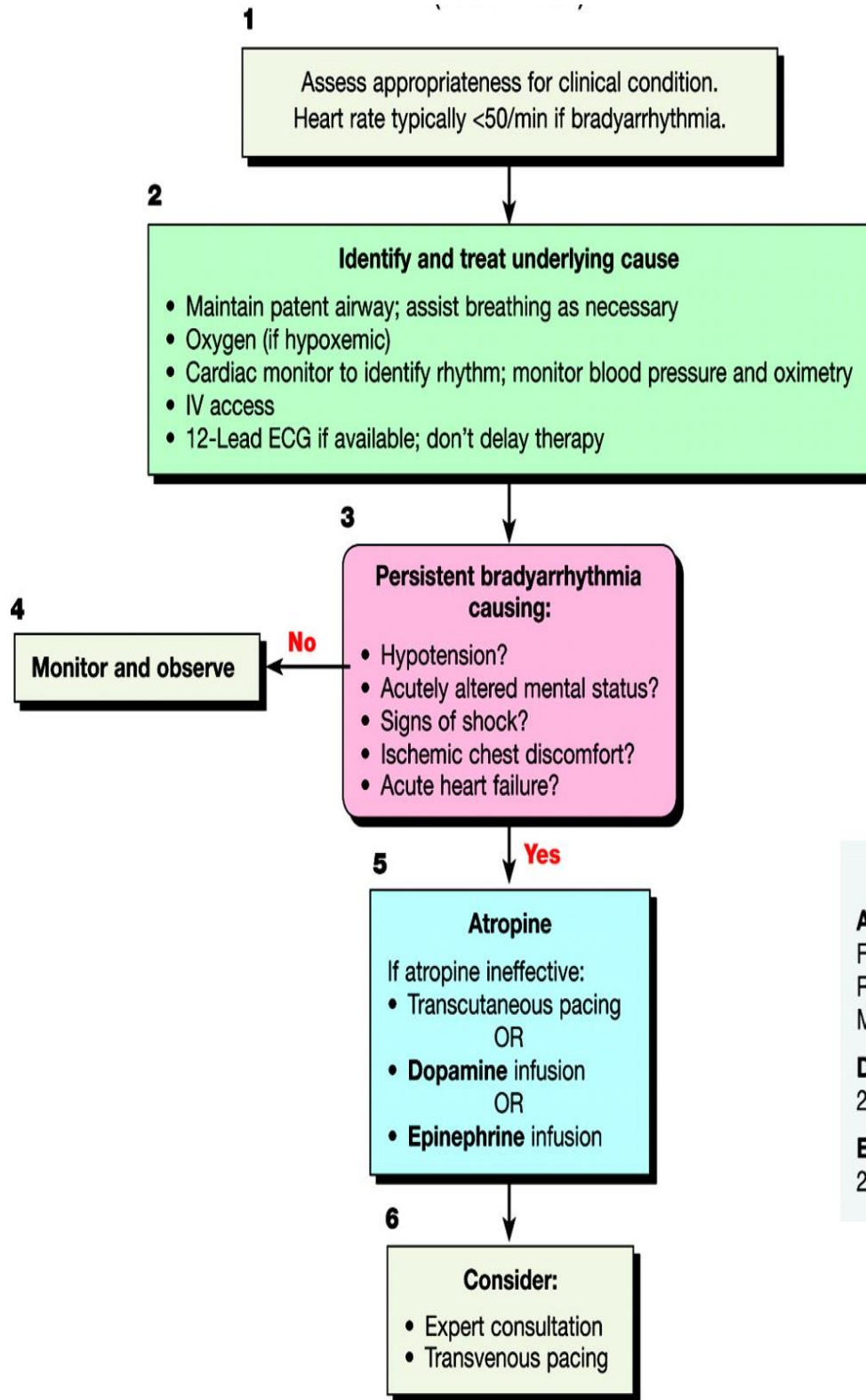
Dopamine IV Infusion:
 5-10 mcg/kg per minute

Norepinephrine IV Infusion:
 0.1-0.5 mcg/kg per minute (in 70-kg adult: 7-35 mcg per minute)

Reversible Causes

- Hypovolemia
- Hypoxia
- Hydrogen ion (acidosis)
- Hypo-/hyperkalemia
- Hypothermia
- Tension pneumothorax
- Tamponade, cardiac
- Toxins
- Thrombosis, pulmonary
- Thrombosis, coronary

ADULT BRADYCARDIA (WITH PULSE)



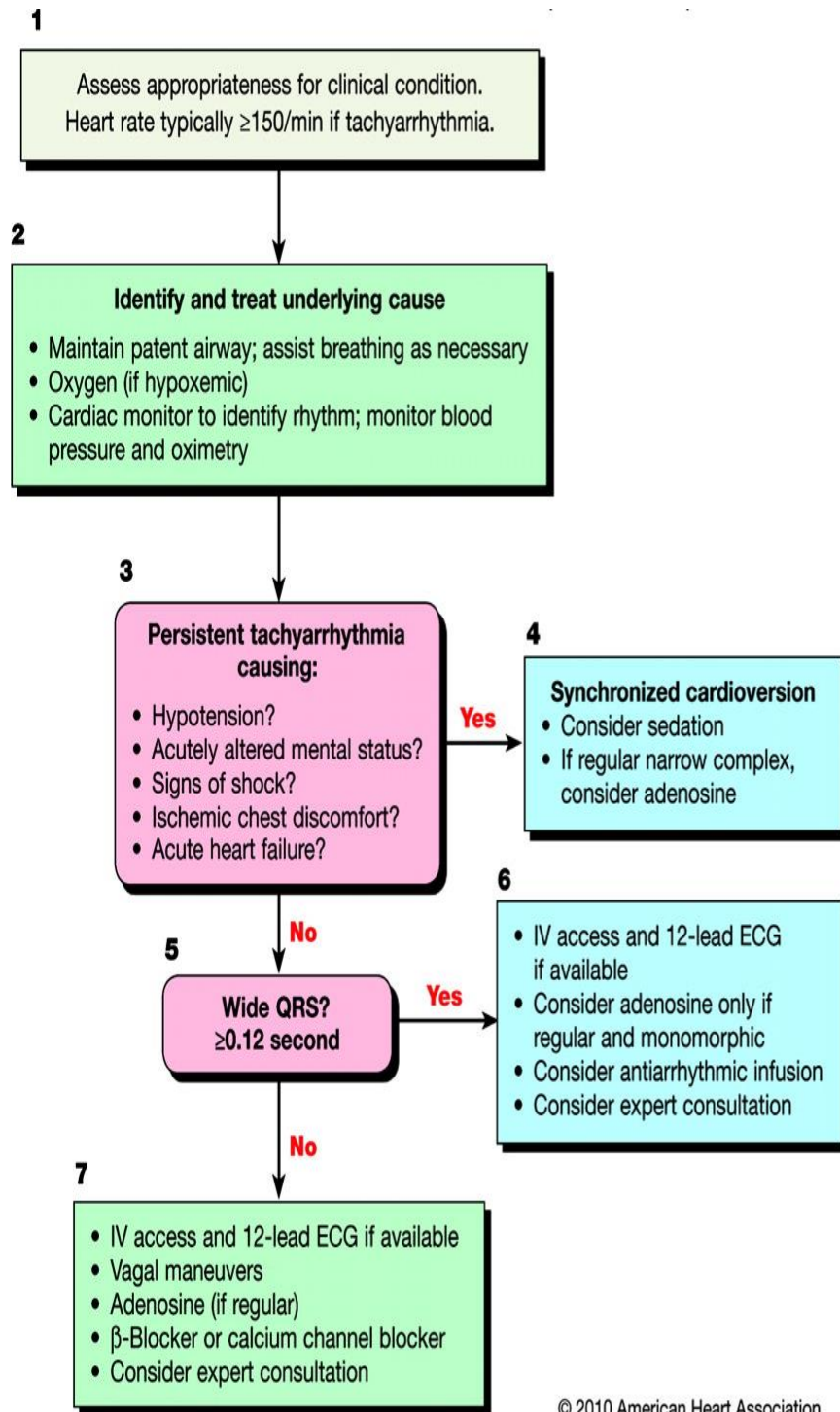
Doses/Details

Atropine IV Dose:
First dose: 0.5 mg bolus
Repeat every 3-5 minutes
Maximum: 3 mg

Dopamine IV Infusion:
2-10 mcg/kg per minute

Epinephrine IV Infusion:
2-10 mcg per minute

ADULT TACHYCARDIA (WITH PULSE)



Doses/Details

Synchronized Cardioversion

Initial recommended doses:

- Narrow regular: 50-100 J
- Narrow irregular: 120-200 J biphasic or 200 J monophasic
- Wide regular: 100 J
- Wide irregular: defibrillation dose (NOT synchronized)

Adenosine IV Dose:

First dose: 6 mg rapid IV push; follow with NS flush.

Second dose: 12 mg if required.

Antiarrhythmic Infusions for Stable Wide-QRS Tachycardia

Procainamide IV Dose:

20-50 mg/min until arrhythmia suppressed, hypotension ensues, QRS duration increases >50%, or maximum dose 17 mg/kg given. Maintenance infusion: 1-4 mg/min. Avoid if prolonged QT or CHF.

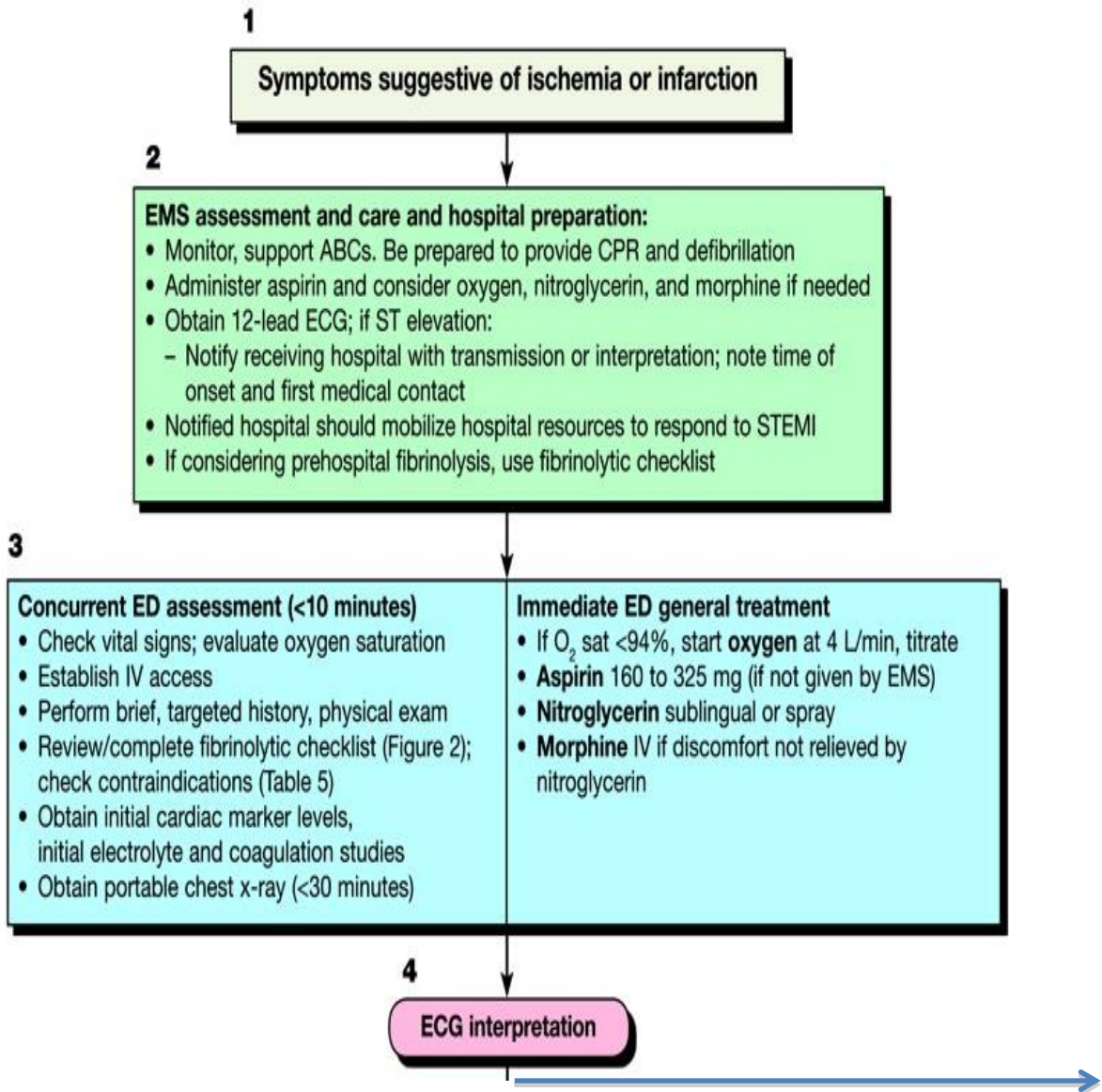
Amiodarone IV Dose:

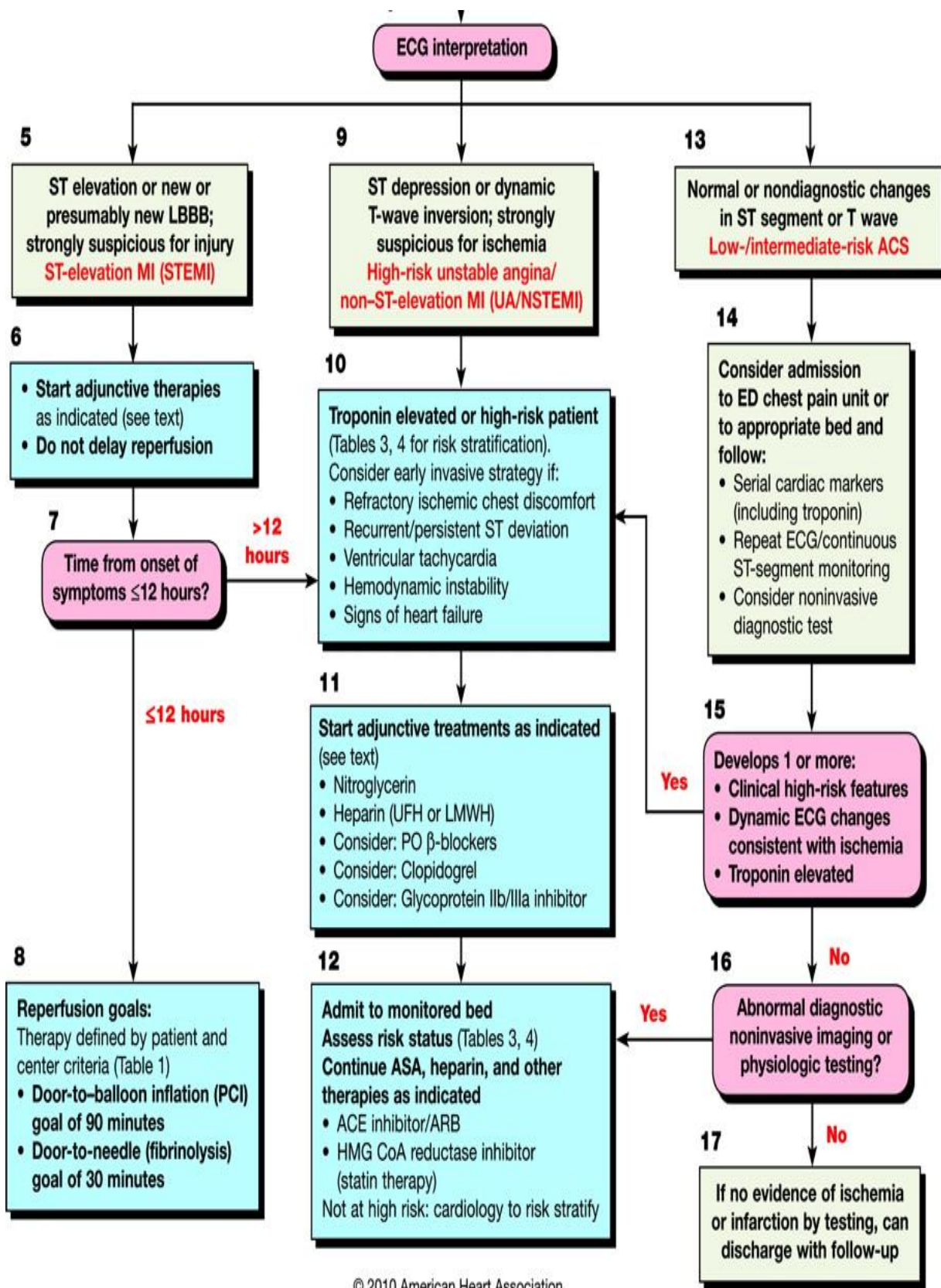
First dose: 150 mg over 10 minutes. Repeat as needed if VT recurs. Follow by maintenance infusion of 1 mg/min for first 6 hours.

Sotalol IV Dose:

100 mg (1.5 mg/kg) over 5 minutes. Avoid if prolonged QT.

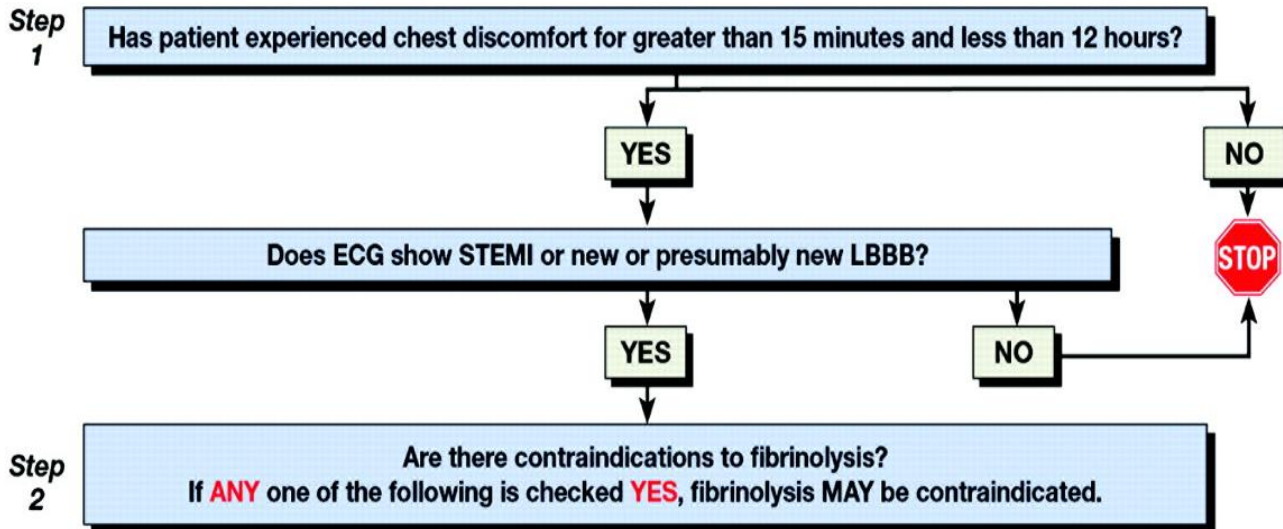
ACUTE CORONARY SYNDROMES





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PREHOSPITAL FIBRINOLYTIC CHECKLIST



- Systolic BP >180 to 200 mm Hg or diastolic BP >100 to 110 mm Hg **YES** NO
- Right vs left arm systolic BP difference >15 mm Hg **YES** NO
- History of structural central nervous system disease **YES** NO
- Significant closed head/facial trauma within the previous 3 weeks **YES** NO
- Stroke >3 hours or <3 months **YES** NO
- Recent (within 2-4 weeks) major trauma, surgery (including laser eye surgery), GI/GU bleed **YES** NO
- Any history of intracranial hemorrhage **YES** NO
- Bleeding, clotting problem, or blood thinners **YES** NO
- Pregnant female **YES** NO
- Serious systemic disease (eg, advanced cancer, severe liver or kidney disease) **YES** NO

Step 3

Is patient at high risk?
If ANY one of the following is checked YES, consider transfer to PCI facility.

- Heart rate ≥100/min AND systolic BP <100 mm Hg **YES** NO
- Pulmonary edema (rales) **YES** NO
- Signs of shock (cool, clammy) **YES** NO
- Contraindications to fibrinolytic therapy **YES†** NO
- Required CPR **YES** NO

†Consider transport to primary PCI facility as destination hospital.

ACS - FIBRINOLYTIC CONTRAINDICATIONS

Absolute Contraindications

- Any prior intracranial hemorrhage (ICH)
- Known structural cerebral vascular lesion (eg, AVM)
- Known malignant intracranial neoplasm (primary or metastatic)
- Ischemic stroke within 3 months EXCEPT acute ischemic stroke within 3 hours
- Suspected aortic dissection
- Active bleeding or bleeding diathesis (excluding menses)
- Significant closed head trauma or facial trauma within 3 months

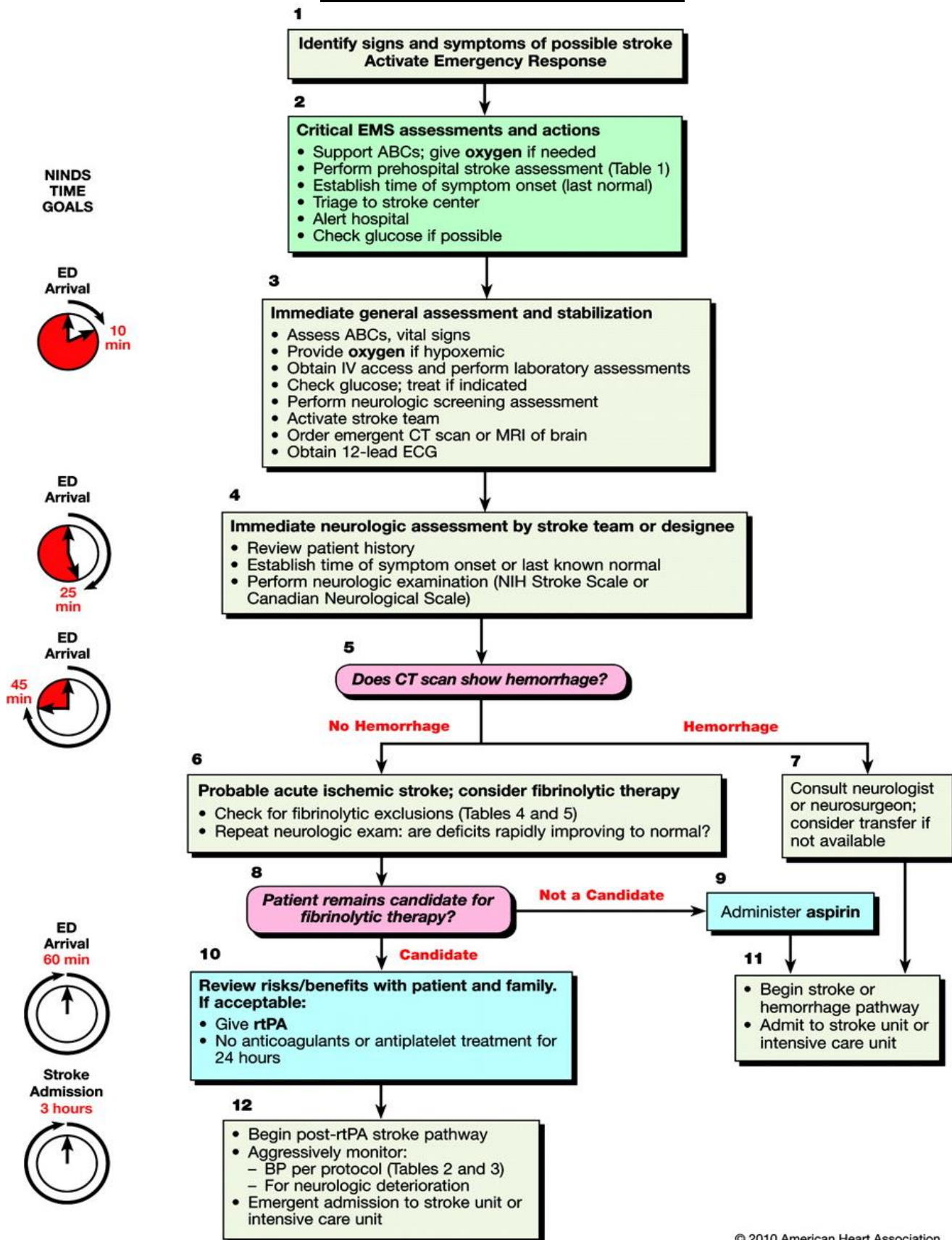
Relative Contraindications

- History of chronic, severe, poorly controlled hypertension
 - Severe uncontrolled hypertension on presentation (SBP >180 mm Hg or DBP >110 mm Hg)‡
 - History of prior ischemic stroke >3 months, dementia, or known intracranial pathology not covered in contraindications
 - Traumatic or prolonged (>10 minutes) CPR or major surgery (<3 weeks)
 - Recent (within 2 to 4 weeks) internal bleeding
 - Noncompressible vascular punctures
 - For streptokinase/anistreplase: prior exposure (>5 days ago) or prior allergic reaction to these agents
 - Pregnancy
 - Active peptic ulcer
 - Current use of anticoagulants: the higher the INR, the higher the risk of bleeding
-

AVM indicates arteriovenous malformation; SBP, systolic blood pressure; DBP, diastolic blood pressure; and INR, International Normalized Ratio.

‡ Could be an absolute contraindication in low-risk patients with myocardial infarction

ADULT SUSPECTED STROKE



THE CINCINNATI PREHOSPITAL STROKE SCALE

(Kothari R, et al. *Acad Emerg Med.* 1997;4:986-990.)

Facial Droop (have patient show teeth or smile):

- Normal – both sides of face move equally
- Abnormal – one side of face does not move as well as the other side



Left: normal. Right: stroke patient with facial droop (right side of face).

Arm Drift (patient closes eyes and extends both arms straight out, with palms up, for 10 seconds):

- Normal – both arms move the same or both arms do not move at all (other findings, such as pronator drift, may be helpful)
- Abnormal – one arm does not move or one arm drifts down compared with the other



Left: Normal

Right: One-sided motor weakness (right arm)

Abnormal Speech (have the patient say “you can’t teach an old dog new tricks”):

- Normal – patient uses correct words with no slurring
- Abnormal – patient slurs words, uses the wrong words, or is unable to speak

Interpretation: If any 1 of these 3 signs is abnormal, the probability of a stroke is 72%

USE OF IV RTPA FOR ACUTE ISCHEMIC STROKE

Inclusion & Exclusion Characteristics

Inclusion Criteria (all **Yes** boxes in this section must be checked)

Yes

- Diagnosis of ischemic stroke causing measurable neurologic deficit
- Onset of symptoms <3 hours before beginning treatment
- Age \geq 18 years

Exclusion Criteria (all **No** boxes in “Contraindications” section must be checked)

Contraindications:

No

- Head trauma or prior stroke in previous 3 months
- Symptoms suggest subarachnoid hemorrhage
- Arterial puncture at noncompressible site in previous 7 days
- History of previous intracranial hemorrhage
- Elevated blood pressure (systolic >185 mm Hg or diastolic >110 mm Hg)
- Evidence of active bleeding on examination
- Acute bleeding diathesis, including but not limited to
 - Platelet count <100 000/mm³
 - Heparin received within 48 hours, resulting in aPTT >upper limit of normal
 - Current use of anticoagulant with INR >1.7 or PT >15 seconds
- Blood glucose concentration <50 mg/dL (2.7 mmol/L)
- CT demonstrates multilobar infarction (hypodensity >1/3 cerebral hemisphere)

Relative Contraindications:

Recent experience suggests that under some circumstances—with careful consideration and weighing of risk to benefit—patients may receive fibrinolytic therapy despite 1 or more relative contraindications. Consider risk to benefit of rtPA administration carefully if any of these relative contraindications is present

- Only minor or rapidly improving stroke symptoms (clearing spontaneously)
- Seizure at onset with postictal residual neurologic impairments
- Major surgery or serious trauma within previous 14 days
- Recent gastrointestinal or urinary tract hemorrhage (within previous 21 days)
- Recent acute myocardial infarction (within previous 3 months)

ACUTE ISCHEMIC STROKE – TREATMENT OF HYPERTENSION

Potential Candidate for Acute Reperfusion Therapy

- A. Patient otherwise eligible for acute reperfusion therapy except that blood pressure is >185/110 mm Hg:-
- Labetalol 10–20 mg IV over 1–2 minutes, may repeat x1, or
 - Nicardipine IV 5 mg/hr, titrate up by 2.5 mg/hr every 5–15 minutes, maximum 15 mg/hr; when desired blood pressure reached, lower to 3 mg/hr, or
 - Other agents (hydralazine, enalaprilat, etc) may be considered when appropriate
- B. If blood pressure is not maintained at or below 185/110 mm Hg, do not administer rtPA
- C. Management of blood pressure during and after rtPA or other acute reperfusion therapy:
- Monitor blood pressure every 15 minutes for 2 hours from the start of rtPA therapy; then every 30 minutes for 6 hours; and then every hour for 16 hours
 - If systolic BP 180–230 mm Hg or diastolic BP 105–120 mm Hg:-
 - Labetalol 10 mg IV followed by continuous IV infusion 2–8 mg/min, or
 - Nicardipine IV 5 mg/h, titrate up to desired effect by 2.5 mg/hr every 5–15 minutes, maximum 15 mg/h
 - If blood pressure not controlled or diastolic BP >140 mm Hg, consider sodium nitroprusside

NOT Potential Candidate for Acute Reperfusion Therapy

- Consider lowering blood pressure in patients with acute ischemic stroke if systolic blood pressure >220 mm Hg or diastolic blood pressure >120 mm Hg
- Consider blood pressure reduction as indicated for other concomitant organ system injury
 - Acute myocardial infarction
 - Congestive heart failure
 - Acute aortic dissection
- A reasonable target is to lower blood pressure by 15% to 25% within the first day

PROCEDURE LOG BOOK

Log in all procedures in <http://myevaluations.com>

Procedure	Date	Pt Name	MRN	Supervising Phys.
Abdominal Paracentesis (3)				
ABG (5)				
Arterial Line Placement (5)				
Arthrocentesis (3)				
Central Venous Catheter (5)				
Endotracheal Intubation (1)				
Lumbar Puncture (5)				
Pelvic/Pap Smear (1)				
Thoracocentesis (3)				
NG Intubation (NG-tube) 1				
Urethral (Foley) Catheter (1)				

NOTES

INTERESTING PATIENTS LOG

(Remember, you will have to do a case report or personal research to graduate; it's a good idea to look for interesting cases now)

Name	MR#	Diagnosis