Cross Cover

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Goals

- To provide a general overview
- Importance of effective handoffs for patient care continuity and safety
- How to give effective hand offs
- Commonly encountered night scenarios

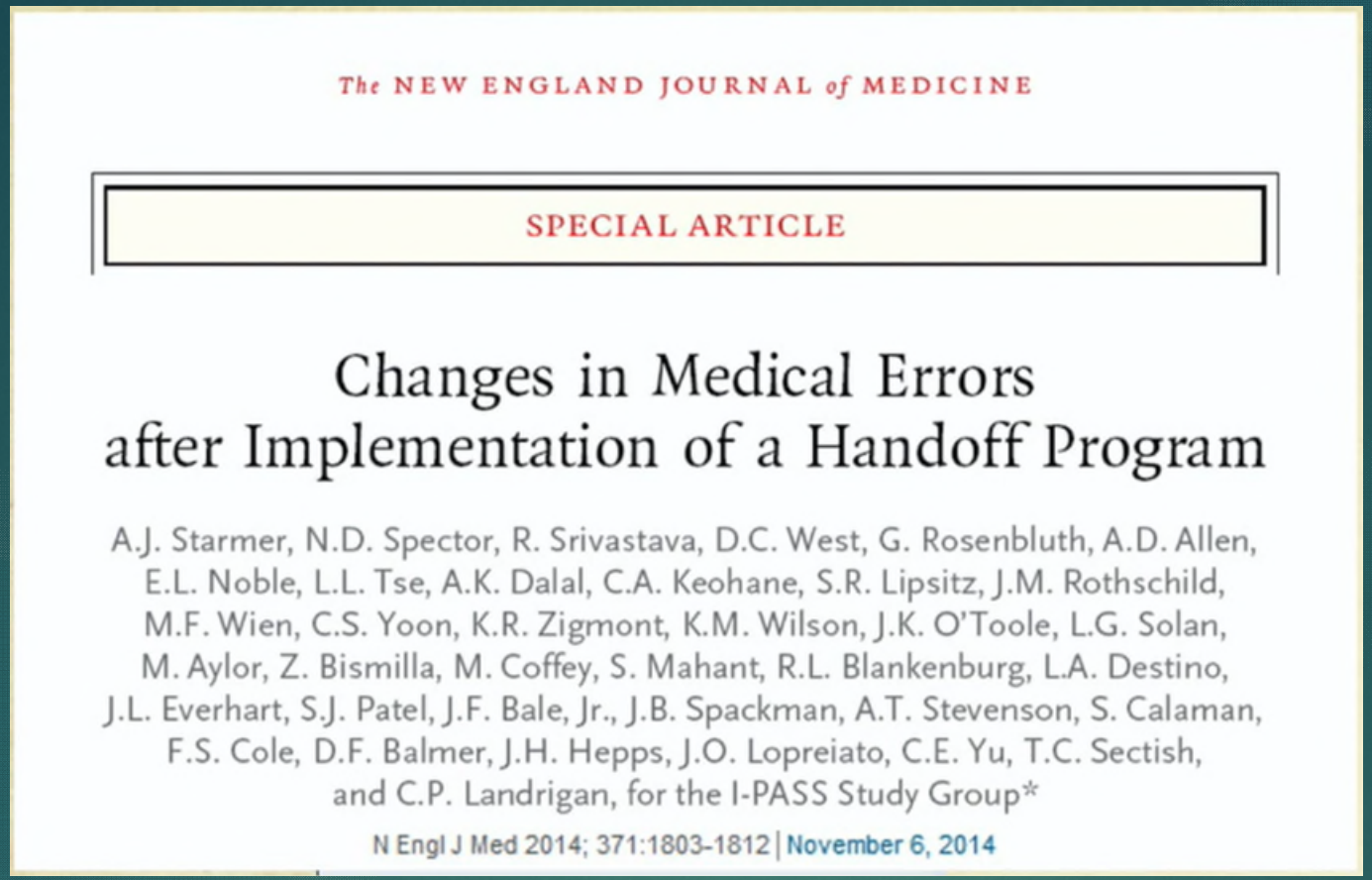
For the ward team

Why do we need handoffs?

- Transfer of responsibility of patient care
- High likelihood of errors and communication gaps- Dangerous
- You do it every day with a different person
- Multiple handoffs during a patient's course of hospitalization

- ACGME-

"Must ensure and monitor effective and structured hand off processes to facilitate both continuity of care and patient safety"



The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

Changes in Medical Errors after Implementation of a Handoff Program

A.J. Starmer, N.D. Spector, R. Srivastava, D.C. West, G. Rosenbluth, A.D. Allen, E.L. Noble, L.L. Tse, A.K. Dalal, C.A. Keohane, S.R. Lipsitz, J.M. Rothschild, M.F. Wien, C.S. Yoon, K.R. Zigmont, K.M. Wilson, J.K. O'Toole, L.G. Solan, M. Aylor, Z. Bismilla, M. Coffey, S. Mahant, R.L. Blankenburg, L.A. Destino, J.L. Everhart, S.J. Patel, J.F. Bale, Jr., J.B. Spackman, A.T. Stevenson, S. Calaman, F.S. Cole, D.F. Balmer, J.H. Hepps, J.O. Lopreiato, C.E. Yu, T.C. Sectish, and C.P. Landrigan, for the I-PASS Study Group*

N Engl J Med 2014; 371:1803-1812 | November 6, 2014

* A prospective systems-based intervention study on inpatient units at nine pediatric residency training programs in the United States and Canada

* Medical-error rate decreased by 23% from the preintervention period to the postintervention period (24.5 vs. 18.8 per 100 admissions, $P<0.001$),
and the rate of preventable adverse events decreased by 30% (4.7 vs. 3.3 events per 100 admissions, $P<0.001$)

I PASS

- **I**llness Severity
- **P**atient Summary
- **A**ction Plan
- **S**ituation awareness and contingency planning
- **S**ynthesis

Illness Severity

- Stable
- *Watcher-*
- Unstable

- Code Status- Full/DNR/DNI/Limited code

Patient Summary

- Brief One liner including pertinent 1-2 pmh, reason for admission, significant hospital events, plan
- Revised Daily

Action List

- What to follow up?
- When to ?
- What to do with that result/Imaging?

Situation Awareness and Medical Contingency

- Pertinent events of day
- Baseline neuro exam- if pts normal baseline is different
- Challenging pt/family

- What you expect may occur? What you would do or you know works best for the patient?

Synthesis

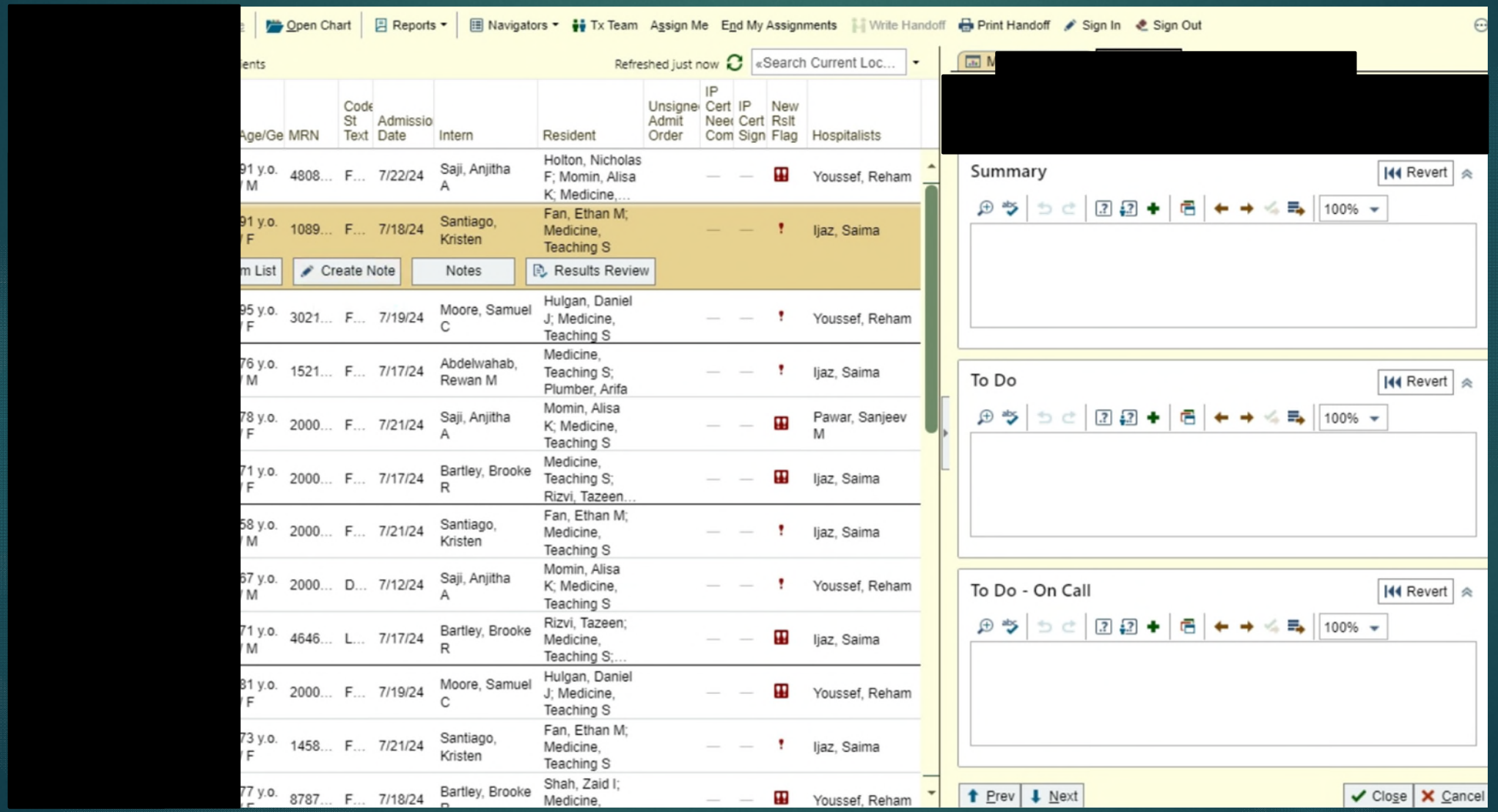
- Read back
- Clarifying questions
- Bidirectional discussion

Keep it precise and brief- NOT AN ESSAY

- 68 yo with DM, HTN, CAD, paroxysmal afib with prior CVA and residual left mild hemiparesis admitted 6/24 with NSTEMI. Underwent LHC today and currently chest pain free. Post procedure had brief RVR self resolved and hematoma at groin site.
- F/up on
  - Rpt H/h at 1800
  - if less than ***- pls assess groin site and prn imaging
  - Transfuse for goal >8.
- Baseline mild left hemiparesis and left facial droop
  AFIB RVR- consider dilt drip.

  Recurrent chest pain-
- Stable/FC

How to prepare sign out note



Who to sign out to?

14	15	16	17	18	19	20
C SHAH BARTLEY *Off: FAN SAJI HULGAN*	D HULGAN MOORE *MU CLINIC: MOMIN FAN*	E FAN SANTIAGO *Off: PLUMBER MOMIN BARTLEY*	A MOMIN SAJI *MU CLINIC: SHAH*	B PLUMBER ABDELWAHAB *Off: SANTIAGO SHAH MOORE*	C SHAH BARTLEY	D HULGAN MOORE I *Off: ABDELWAHAB FAN SAJI*
21	22	23	24	25	26	27
E FAN SANTIAGO *Off: PLUMBER MOMIN BARTLEY*	A MOMIN SAJI *MU CLINIC: HULGAN SHAH*	B PLUMBER ABDELWAHAB *Off: SANTIAGO SHAH HULGAN*	C SHAH BARTLEY *MU CLINIC: MOMIN*	D HULGAN MOORE *Off: ABDELWAHAB FAN SAJI*	E FAN SANTIAGO	A MOMIN SAJI *Off: PLUMBER BARTLEY MOORE*
28	29	30	31			
B PLUMBER ABDELWAHAB *Off: SANTIAGO SHAH HULGAN*	C SHAH BARTLEY *MU CLINIC: SAJI MOORE*	D HULGAN MOORE *Off: ABDELWAHAB FAN MOMIN*	E FAM SANTIAGO *MU CLINIC: SHAH SAJI*			

CALL TEAMS	ATTENDING	RESIDENT	INTERNS	CROSS COVERAGE GROUPS
A	R. YOUSEFF / A. ABBAS	MOMIN	SAJI	I. MOMIN, PLUMBER, SHAH, HULGAN, FAN
B	S. IJAZ / P. KOTA	PLUMBER	ABDELWAHAB	II. SAJI, ABDELWAHAB, BARTLEY, MOORE, SANTIAGO
C	B. WALL	SHAH	BARTLEY	
D	R. YOUSEFF / A. ABBAS	HULGAN	MOORE	
E	S. IJAZ / P. KOTA	FAN	SANTIAGO	

For the cross covering team

When you get called

- Clarify patient name or Who is the R1 for this patient or room number/teaching service list.
- Reason for call?
- Ask pertinent questions per situation
- Please do not be judgmental about seemingly stupid calls- every call is documented usually in chart by nursing staff.
- To Do or Follow up things- Develop your own system of keeping track

Is the patient stable?

- Unstable
- Put phone down and GO SEE THE PATIENT
- Review Sign out/Text or call UL and let them know you are on the way to see the patient
- Assess and Medical Decision Making
- As needed intermediate care or ICU transfer

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- Stable

- Reason for call
- Review chart/sign out note
- Decision/Plan
- Prn Discuss with upper level if you are not sure

- Understand the Patients condition before you act
- Look at the interns note *** and review chart
- Why was patient admitted?
- Is this a new or worsening problem?
- Is there a reason to not do what you plan on doing?
- My rule of thumb- Think and rule out the worst scenario for any presenting problem which is crucial to identify and would definitely change management.

DOCUMENT

DOCUMENT

DOCUMENT

DOCUMENT

DOCUMENT

Specific Situations

1)Altered Mental Status

- Have a framework in mind
- **MOVESTUPID**
- Metabolic: Na disturbance, (Hypo/Hyper), Hyper Ca, Hepatic Encephalopathy (Ammonia), Uremia (CMP) (Asterixis on clinical exam)
- Oxygen: hypoxia, hypercapnia, carbon monoxide (ABG)
- Vascular: stroke, bleed/trauma, acute change in BP (CT/MRI)
- Endocrine: glucose, **thyroid, cortisol**
- Seizure/post-ictal state (clinical hx from RN, EEG)
- Trauma, tumor, TTP
- Uremia (Labs)
- Psychogenic (Psych pts/meds)
- Infection: esp UTI in elderly, CNS infection, sepsis (Basic Infectious w/up, rare LP)
- Drugs: esp narcotics, benzos, sleep aids, recreational drugs (UDS)

- **Focused History and Exam**
- Stat CT head if indicated- non contrast, If stroke like sxs, ask staff to activate stroke team (NCHCT, CTA H/N)
- Labs- POC glucose, CMP, Ammonia,
- ABG- hypercapnia- NIPPV
- Meds- Consider adding holding parameters, discontinuing
- Consider giving Naloxone 0.4-2 mg IV/IM (on opiods/pca), May repeat after 2-3 mins.
- Use caution with Flumazenil as this may precipitate a seizure in a patient who is chronically on benzo's- 0.2 mg over 30 seconds, Repeat dose of 0.5 mg after 1 min if needed, max 3 mg
- Prn EEG/VEEG
- Prn MRI

2) Agitation/Combative

A) If patient is not a threat to him/herself or staff,

* try talking to him/her, re-orienting first, having family stay at bedside
* try environmental modification first,

B) If pulling at lines, trying to get out of bed (and is fall risk), or attempting to harm staff, may need meds

* Safety sitter
* Lorazepam (use with caution in elderly) 0.5-2 mg IV/IM
* Trazodone
* Haloperidol 2-5 mg IV/IM
* Avoid dopamine antagonists in patients with Parkinson's
* Quetiapine 25 mg PO if recurrent
* Restraints (Mittens> wrist > ankles > 4-point)- USE as LAST RESORT

Caution if about to be discharged. Must be restraints-free for 24-48 hours prior to going to any facility like SNU/Rehab/LTAC.

3) Seizures

- ABCs
- Left lateral position, Nothing in mouth
- Oxygen supplementation
- Ativan 2mg, repeat 1-2 mg in another 1-2 min till seizures stopped
- ? Seizure disorder vs De novo seziures (stat labs/CT head)
- Loading dose Keppra prn, If any concerns of ongoing seizures or non convulsive status- EEG/VEEG/Neuro ICU transfer (# 3400).
- Neurology consult prn

4) Fall

- Assess and focused neuro exam
- Mechanical fall vs preceding sxs (?pre syncope vs syncope)
- Did pt lose consciousness?
- Vitals/labs/tele review if patient on tele/Review meds
- Prn CT head – low threshold if patient on OAC
- Prn other imaging based on physical exam (xrays)
- Fall precautions/bed lower
- Neuro Checks q4h if indicated

5) Pain

- Tyelenol
- NSAIDS if able- PO, IV Toradol
- Tyelenol #2,#3, #4, (APAP with codeine), Tramadol
- Norco (Hydrocodone/APAP)
- Percocet (Oxycodone/APAP)
- Oxycodone
- Morphine
- Hydromorphone/Dilaudid (preferred for HD patients)
- Hydromorphone/Dilaudid PCA (PROBABLY NEVER be the one starting it at night-)
- Gabapentin/Muscle Relaxant
- HOLDING PARAMETERS-
- BOWEL REGIMEN/INCENTIVE SPIRO inhouse

6)Acute Dyspnea

- Symptom and not a diagnosis
- Resp causes- Pneumonia, Pneumothorax, PE (D dimer, CTA chest, V/q scan, venous doppler), COPD or Asthma Flare (exam), Aspiration (hx of emesis, AMS), ARDS
- Cardiac causes- CHF, Arrhythmia, angina equivalent/MI
- Psych- Anxiety, Panic attack
- Metabolic Acidosis can causes tachypnea and resp distress- severe DKA, renal insufficiency, developing abdominal issues- (abg, bhb, lactic acid, BMP)
- CXR and ABG stat, Labs, Trop, EKG, prn CTA chest,
- Sats and WOB-
- Nebs, Lasix, Anticoagulation prn
- Supplemental Oxygen
- Rapidly increased needs- Call a RRT- Pulm Consult or ICU transfer- # 3300

7)Acute Chest Pain

- Check vitals, EKG, CXR, cardiac enzymes, cardiac exam
- Anginal: ASA, give oxygen, nitroglycerin (if BP OK) and morphine
- STEMI: activate STEMI team, ASA/AC/Call cardiology STAT
- “Tearing” consider aortic dissection
- Pleuritic: consider PE, PTX, pleural effusion
- New murmur, rub: may need stat echo
- Musculoskeletal: reproducible on exam?
- Gastroesophageal: try Maalox, trial of H2B or PPI
- After hours stat TTE needs cardiology consult

8) HYPOTENSION

- See and evaluate patient at bedside
- CONFIRM- Take vitals yourself
- Absolute- SBP<90 or MAP <65
  Relative- Drop in SBP from baseline>40
  Orthostatic- SBP>20 or DBP>10 or HR>20 Supine->sitting->standing
  Profound Hypotension – failed fluids/needs pressors
- Hypotension does not mean SHOCK
- Patients in the early stages of shock can be normotensive or hypertensive, such that hypotension does **not** have to be present for the diagnosis.
- Conversely, not every patient who has hypotension has shock (eg, chronic hypotension, drug-induced hypotension, autonomic dysfunction, peripheral vascular disease).

- Meds/Signs of sepsis/cardiogenic/ obstructive/hypovolemic/distributive
- Is pt tolerating?
- Fluids if able- Caution with CHF/HFrEF, Anuric ESRD,
- 30ml/kg if concern for sepsis and able. * * * Albumin
- Unstable patient- can call RRT
- If pressors needed consult ICU
- Intermediate floors can give non titratable peripheral line levophed and inotropes
- Consult PICC nurse/order pressors so pharmacy can prepare
- If concern for evolving sepsis- cbc/cmp/ua with cx/bld cx/cxr/lactic acid
- Empiric abx (vanc/zyvox+merrem or zosyn) (After cultures collected)

9) HYPERTENSION

- Recheck the reading manually; check the other vital signs; quick chart review; what do they take at home?
- Review vital sign trends. Is this new?
- Severe HTN/HTN Urgency: systolic blood pressure ≥180 mmHg and/or diastolic blood pressure ≥120 mmHg; no end organ damage
- If patient has BP meds ordered, may give dose early
- If patient has been admitted for stroke, may be allowing for permissive hypertension
- If not severely elevated, no need to lower acutely
- Can use PRN meds:

  Clonidine 0.1-0.2 mg PO Q4-6H (may cause sedation, bradycardia)

  Enalaprilat 1.25-5 mg IV Q6H (monitor renal function)

  Hydralazine 25 mg PO or 5-10 mg IV Q4-6H (watch for tachycardia)
  Labetalol 5-10 mg IV q4-6 H

10) HYPERTENSIVE EMERGENCY

- >180/120 AND e/o END-ORGAN DAMAGE->CARDENE DRIP/ICU
- Brain: AMS, lethargy, stroke, seizure, IC bleed (Stat non contrast CT Head)
- Eyes: Changes in vision, papilledema, flame hemorrhages (Fundoscopy)
- Cardiac: Chest pain-angina or dissection, heart failure, EKG with strain or ischemic changes, SOB. (EKG/Tele, Trop, BNP, CXR)
- Renal: low urine output, edema, elevated Cr, hematuria (UA)
- Significantly elevated BP and AMS- **Need MRI to r/o CVA vs PRES-**
- **As for acute CVA you allow permissive HTN and for PRES you need ICU/cardene drip**

11)ARRHYTHMIAS

- ALWAYS LOOK AT THE EKG YOURSELF!
- Unstable tachyarrhythmia: shock 100 J synchronized. CALL CARDIOLOGY
- Stable w/ narrow complex tachyarrhythmia:
- 1) A-fib w/ RVR: rate control w/ nodal blocker

  Diltiazem 5-10 mg IV over 2 mins, Repeat after 15 mins if needed, Then start drip if needed @ 5-15 mg/hr, stop if hypotensive

  Digoxin if BP low: 0.25-0.5 mg IV (renal function ok)

  Amiodarone bolus/drip if pt already on AC/know for sure new onset-

  **Call cardiology

2) SVT: try vagal maneuver first, then Adenosine 6 mg IV, Rapid push, may repeat another 12 mg- CRASH CART AT bedside.

3) VT: non-sustained.

- Non-sustained: check Mg and K, look at TTE/EF

- Wide complex tachyarrhythmia- HD stable/HD unstable but with pulse/HD unstable and Pulseless->ACLS
- Bradyarrhythmia-HD stable/HD unstable
- MICU/CARDIOLOGY

12) NAUSEA AND VOMITING

- Medications: narcotics, antibiotics, & many others
- Obstruction: Check for bowel sounds, KUB. Prn CT, NPO, NG tube, call surgery
- Pancreatitis: Check lipase. Consider US or CT scan. NPO, aggressive IVF, pain control
- Elevated intracranial pressure: Neuro findings? Check CT. prn Call neurosurgery
- Vestibular disorder: Vertigo? Nystagmus?
- Metabolic disturbance: Uremia, DKA, Adrenal insufficiency
- Others: Myocardial infarction, Infection, Migraine, Indigestion
- Symptomatic relief:

Ondansetron 4-8 mg ODT or IV

IV Reglan 5-10 q6h prn, IV Compazine 5-10 q6h prn

Promethazine: 12.5-25 mg PO, PR,

*****EKG/QTC

13) INSOMNIA

- MORE protocol- Day time team- Minimize night interuptions, ?labs, day night cycle
- Melatonin
- Elderly pt with dementia and night agitation- Trazodone prn or scheduled at HS (off label use)
- Benadryl- Caution with elderly can cause urinary retention/ams- liquid>po>iv
- My rule is only use ambien if they are on this PTA- not something I would start in house
- Caution with benzos in elderly

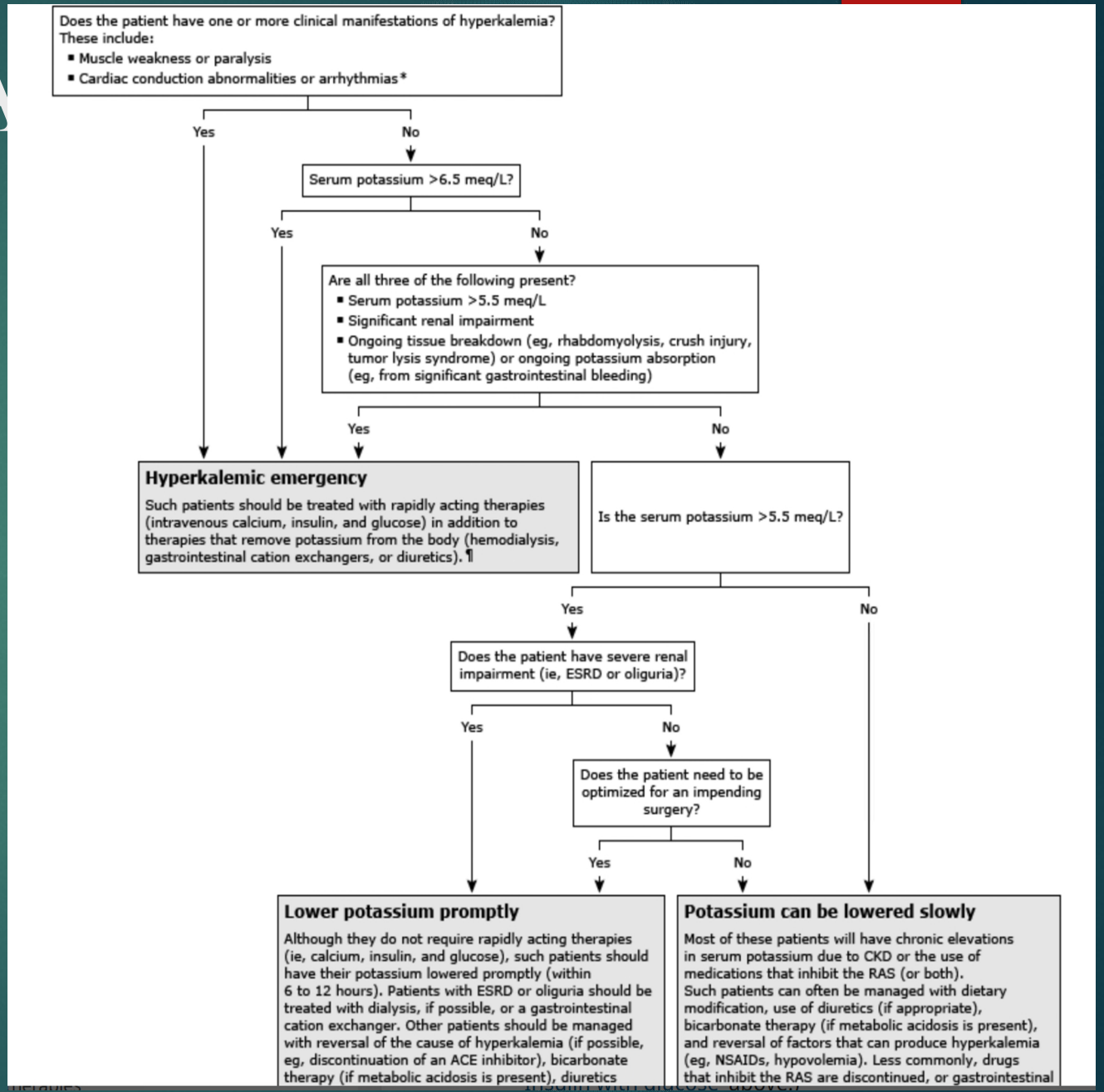
14) HYPERKALEMIA

- Make sure not hemolyzed sample- Rpt K stat
- EKG→Peaked T waves, flattened P, PR prolonged, QRS wide
- For life-threatening/severe:

●Calcium gluconate 10ml 10% solution IV over 2-3 mins + ●D50W 50 ml + Insulin 10 units IV

●With acidosis: Sodium bicarbonate 50-150 mEq

- Albuterol 10-20 mg nebulized can also be used
- Oral potassium binders- Lokelma



15) Positive Blood Culture

- If 1 of 2 is positive with Gram positive cocci, it may be a contaminant
- However, if the patient is very sick, running fevers, and/or has a central line/PICC/port, you may want to cover with antibiotics
- Consider repeating cultures
- If 2 of 2 or Gram negative organisms, start patient on empiric antibiotics

  Ceftriaxone for gram neg (Zosyn if risk factors for pseudomonas)

  Vancomycin for gram positive

16) Critical Labs

- Anemia
- Thrombocytopenia- <10K, <20 K and bleeding,
- Alkalosis- OSA/OHVS, Actively diuresing patient
- Hypocalcemia- Corrected calcium for albumin, ionized ca

PRBC indications:

- Symptomatic anemia regardless of H/H
- Acute blood loss with evidence of inadequate O2 delivery
- Hgb </= 7 for most patients
- Hgb </= 8 for active bleeding, patients with heart/lung disease or undergoing chemotherapy
- May need irradiated and/or leukoreduced for patients with hematologic malignancies/immunosuppression
- If history of CHF or CKD, transfuse over 4 hours
- Each unit pRBC has volume of 300cc and should raise hgb by 1g/dL and Hct by 3% unless active bleeding

Platelets indications

- Actively bleeding
  Transfuse to keep > 50 K if actively bleeding or >100K if head bleed.
- Preparation for an invasive procedure-
- Prevent spontaneous bleeding
  <10K
  <20-30K if febrile/septic
- 1 unit of plt is equivalent to 4-6 pooled donor units
- 1 unit should raise plt count by 30K

- Neurosurgery or ocular surgery – 100,000/microL
- Most other major surgery – 50,000/microL
- Endoscopic procedures – 50,000/microL for therapeutic procedures; 20,000/microL for low risk diagnostic procedures
- Bronchoscopy with bronchoalveolar lavage (BAL) – 20,000 to 30,000/microL
- Central line placement – 20,000/microL
- Lumbar puncture – 10,000 to 20,000/microL in patients with hematologic malignancies and 40,000 to 50,000 in patients without hematologic malignancies; lower thresholds may be used in patients with immune thrombocytopenia (ITP)
- Epidural anesthesia – 80,000/microL
- Bone marrow aspiration/biopsy – 20,000/microL

Calling a Consult

- Must have been discussed with Upper Level.
- Introduce yourself
- I would like to call a new consult for a patient of mine in * * * *
- ALWAYS want to start with the reason for the consult and your specific question if applicable.
- Then give one liner/brief summary. Other details if asked
- Mention if routine or urgent consult

Radiology

- CXR: always try to get a 2-view unless patient will have great difficulty moving
- Decubitus film to look for layering of effusion
- Head CT: non-contrast to look for bleeding
- MRI usually better to look for other head lesions
- Abdominal CT: IV contrast better for most things
- Avoid contrasted studies in patient's with renal failure/insufficiency/AKI/CKD
- No MRI contrast for dialysis patients
- Can always call radiology to see what type of study needed
- STAT or ASAP imaging- You may want to call radiology - # 7770

* * * PICC line * * *

- Before giving in...

*Ask how many times have they tried to put in a PIV?

*Did the charge RN or Nursing supervisor try?

*Did they call the PICC nurse to try a difficult PIV via ultrasound?

*When will the patient be discharged? If tomorrow, then definitely not.

*Does the patient actually need one in the middle of the night? Can it wait so that the daytime team can assess?

- If all attempts to get a PIV fail and IV access is necessary- Try Mid line first (again put in by PICC RN, still a PIV).

Death

- Can be pronounced by 2 RNs
- Check for:
  - Spontaneous or responsive movement
    - Pupillary, corneal reflexes
    - Carotid pulse
  - Respirations over entire lung field
  - Heart sounds throughout chest
- Notify patient's family & attending/covering physician
- Chaplain will help family with arrangements

Death Note

- Time you received the page or CODE Blue called
- Assessment/exam finding if applicable
- Code Blue note- usually by the code leader- ICU Provider or Upper Level
- Death pronounced at what time and date.

WHY IS CROSS COVER DIFFERENT?

- Taking care of patient you do not know
- Seeing them for the first time possibly in the event of emergency/dire situation
- Night time- exhausted after your call day, sleepy and fatigued
- At the end of the day – the patient in front of you matters- its their life, some one's wife, husband, father, mother, son or daughter and you want to do and give them your best medical and evidence based care as possible
- Take a step back- Breathe in and out- Relax and focus
- Systematic and thoughtful and thorough->usually helps and is the key.
- Don't take things for granted and assume things
- When in doubt- Discuss with UL
- Can always discuss/call ICU extender provider

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6876135/
- Ari M, et al. University of Colorado Anschutz Medical, Campus School of Medicine Intern Guide. 2014-2015., http://www.ucdenver.edu/academics/colleges/medicalschool/departments/medicine/intmed/imrp/Documents/Intern%20Survival%20Guide%202014-2015.pdf
- Up To Date

QUESTIONS/DISCUSSION