2018 LLSA Review

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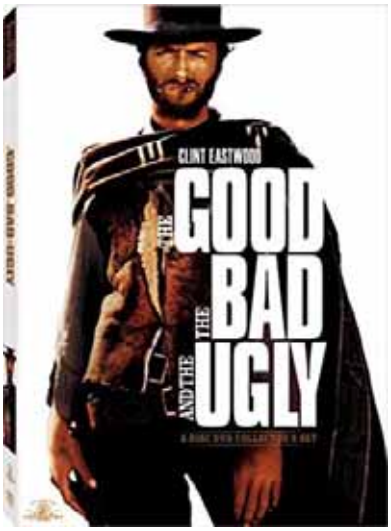
I'm Back

Objectives

- Review 2018 LLSA articles so that you can pass the exam
  - 11 articles
  - 20 questions on LLSA examination
- Review articles from the perspective of a practicing emergency physician in the community
- Highlight areas of particular importance (bolded and underlined)
- Have a little fun along the way



- The Good
  - This may be the last time we do this
    - MyEMcert—pilot started
  - There are only 11 articles!!
  - A few articles may change your practice
- The Bad
  - Some of this stuff is on the Concert
- The Ugly
  - A few articles are duds.

Clinical Policy for Well-Appearing Infants & Children <2 Years of Age Presenting to the ED with Fever

- Mace, et al.
- Definitions
  - Fever=38.0°C (100.4!!)
  - Without a source
    - Acute onset
    - Duration < 1 week
    - Absence of localizing signs
- Background
  - Fever phobia→15% of all ED visits
  - Problem
    - No clinical decision tools
    - No predictive tests
  - Vaccines→Have been a game changer
    - incidence of occult bacteremia=0.004% to 2%
      - Down from 7-12%
- Urinary Tract Infections
  - Most common cause of SBI in infants <2 years with fever
  - Pneumonia next

Clinical Policy for Well-Appearing Infants & Children <2 Years of Age Presenting to the ED with Fever

- Question 1: For well-appearing immunocopetent infants and children aged 2 months to 2 years presenting with fever, are there clinical predictors that identify patients at risk for urinary tract infections?
  - Answer
    - H/P Predictors
      - Females < 12 months
      - Uncircumcised males
      - Non-black race
      - Fever > 24 hours
      - High fever—39.0°C (102.2!!) or greater
      - Negative test result for respiratory pathogens (really, who sends these)
      - No obvious source of infection
    - Laboratory Predictors (I don't know about you—but I typically do not get on well appearing)
      - Elevated WBC
      - Elevated mean absolute neutrophil count
      - Elevated mean CRP

Clinical Policy for Well-Appearing Infants & Children <2 Years of Age Presenting to the ED with Fever

- Question 2: For well-appearing febrile infants and children aged 2 months to 2 years undergoing urine testing, which laboratory testing method(s) should be used to diagnose a urinary tract infection?
  - Answer
    - Any one of the following positive=UTI
      - Urine leukocyte esterase
        - Better sensitivity
      - Urine Nitrites
        - Better specificity
      - Leukocyte count
        - >20/hpf=likelihood ratio of 19 (what? Higher the count→more likely UTI)
      - Gram stain
    - **Urine Culture→order if starting ABX or negative UA and still suspect source**
      - Postive Cx
        - >100,000 CFU/ml of single pathogen if bag sample
        - >20,000 CFU/ml of single pathogen if cath sample
  - NOTE: the policy does not say HOW to get the sample!!

Clinical Policy for Well-Appearing Infants & Children <2 Years of Age Presenting to the ED with Fever

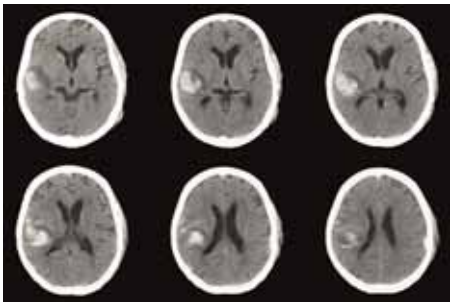
- Question 3: For well-appearing immunocompetent infants and children aged 2 months to 2 years presenting with fever, are there clinical predictors that identify patients at risk for pneumonia for whom a chest radiograph should be obtained?
  - Answer
    - **CONSIDER a CXR if:**
      - Cough
      - Hypoxia
      - **High fever—39.0°C or higher (102.2)**
      - **Fever greater than 48 hours**
      - **Tachycardia and tachypnea out of proportion to fever**
    - Do not get if only
      - Wheezing
      - High likelihood of bronchiolitis

Clinical Policy for Well-Appearing Infants & Children <2 Years of Age Presenting to the ED with Fever

- Question 4: For well appearing immunocopetent full term infants aged 1 month to 3 months presenting with fever, are there predictors that identify patients at risk for meningitis for whom CSF should be obtained?
  - Answer
    - NO
    - "Reasonable" to defer LP→if you do so then:
      - No ABX
      - Arrange
        - Admission, or
        - Close follow up, or
        - Recheck in the ED.
- Interesting→look at Appendices for potential benefits and harms

Guidelines for the Management of Spontaneous Intracranial Hemorrhage

- Hemphill, et al.
- Background
  - UGH→another long policy article
  - Duh→"…excellent medical care likely has a potent, direct impact on ICH morbidity and mortality.
  - Goal of article→Update AHA/ASA 2010 ICH guidelines



Guidelines for the Management of Spontaneous Intracranial Hemorrhage

- Emergency Diagnosis and Assesment
  - Interesting fact→>20% of patients will have a decrease in GCS of 2+ between initial EMS assessment and ED eval
  - Prehospital Management
    - ABC
    - Call ahead→prepare the scanner
  - ED Management
    - Diagnose
    - Calculate standardized severity score (??)
    - Arrange admission or transfer
    - Lower BP
    - Reverse Coagulopathy

Guidelines for the Management of Spontaneous Intracranial Hemorrhage

TABLE 3. Determination of the ICH Score

Component	ICH Score Points
GCS score	
3–4	2
5–12	1
13–15	0
ICH volume, cm³	
≥30	1
<30	0
IVH	
Yes	1
No	0
Infratentorial origin of ICH	
Yes	1
No	0
Age, y	
≥80	1
<80	0
Total ICH Score	0–6

GCS score indicates GCS score on initial presentation (or after resuscitation); ICH volume, volume on initial CT calculated using *ABC/2* method; and IVH, presence of any IVH on initial CT.

https://em.umaryland.edu/educational_pearls/2797/

https://www.mdcalc.com/intracerebral-hemorrhage-ich-score

Guidelines for the Management of Spontaneous Intracranial Hemorrhage

- ED Management
  - Diagnosis—CT or MRI
    - Consider CTA or contrast enhanced CT to identify patients with risk for hematoma expansion
      - SPOT Sign→active contrast extravasation in hematoma
  - Lower BP
    - Why
      - Not the same issue of ischemic penumbra
      - High SBP associated with greater hematoma expansion
    - What
      - **TARGET SBP=140mmHg**
        - **If SBP 150-220 mmHg**
        - **No contraindications to acute blood pressure management**
      - Consider "aggressive reduction" with continuous infusion—if SBP>220mmHg
    - How
      - "…the choice of agent should take into account the practicability, pharmacological profile, potential side effects, and cost."

Guidelines for the Management of Spontaneous Intracranial Hemorrhage

- ED Management—continued
  - Reverse coagulopathy
    - Vitamin K Antagonists
      - Goal: Rapid reversal
        - Options
          - Vitamin K + FFP
          - **Vitamin K + PCCs**
            - **Remember 2016?→Rapid Reversal of Warfarin-Associated Hemorrhage in the ED by PCC by Frumkin**
            - **More rapid than Vitamin K + FFP**
            - **Less volume**
            - **Tastes great→but not better outcomes**
    - NOACs→good luck
    - Severe factor deficiencies or thrombocytopenia→replace
    - Other tidbits
      - If on antiplatelet medication→no use for platelet transfusion
      - If on heparin and bleed→may consider protamine
      - Think about DVT prophylaxis

Guidelines for the Management of Spontaneous Intracranial Hemorrhage

- The rest of the story
  - Admit to the ICU (thanks)
  - Seizure prophylaxis
    - Not recommended
  - Neurogenic pulmonary edema
    - Abrupt and rapidly progesses
    - Think about mechanical ventilation
  - Screen for
    - Dsyphagia
    - Myocardial ischemia/infarction
  - **Surgical Treatment**
    - **When**
      - **Cerebellar hemorrhage + deterioration**
      - **Brainstem compression**
      - **Hydrocephalus from ventricle obstruction**
    - Early evacuation no benefit versus waiting until patients deteriorate
  - Withdrawal of support
    - Wait for the 2nd full day of hospitalization
    - If existing DNR order→"should not limit appropriate medical and surgical interventions unless otherwise explicitly indicated."

The Following Article is in Tribute to Dr. Bill Cordell

Imaging Foreign Bodies: Ingested, Aspirated, and Inserted.

- Tseng, et al
- Background
  - 535,000 visits to EDs in 2010 for foreign bodies
  - Radiography→main stay for imaging foreign bodies
    - Radiopacity=ability to absorb or scatter x-ray photons
    - Radiographic visibility=different and a function of several factors: x-ray attenuation of object, surrounding structures, overlying/underlying structures
- General concept
  - If patient develops any signs of peritonitis or other suggestive symptoms→get out the object

Imaging Foreign Bodies: Ingested, Aspirated, and Inserted.

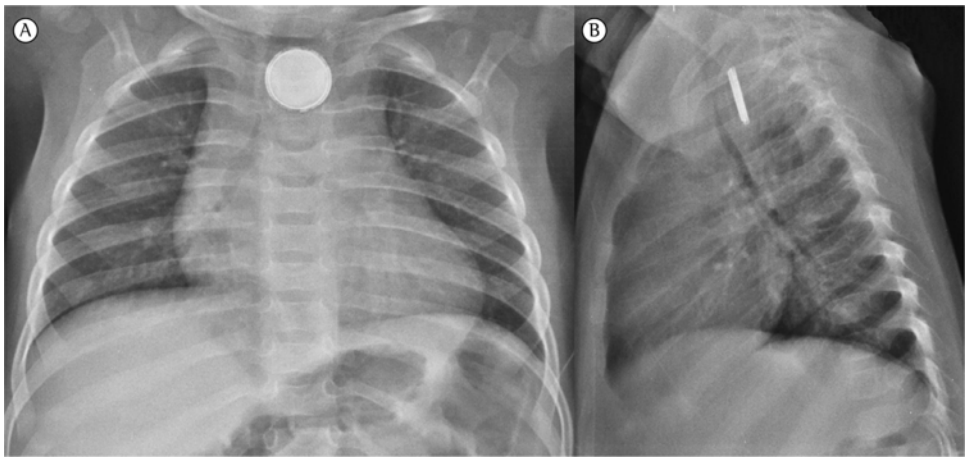
- The Good, the Bad, the Ugly
  - The Good
    - Most Ingested FBs pass without problems→only 10-20% need intervention
    - Cricopharyngeal junction→most common site of ingested FB impaction
      - Above cricopharyngeus—ENT
      - Below cricopharyngeus—GI or GS
    - Coins
      - Can be observed in esophagus for 12-24 hours before endoscopy needed
    - No need for Oral contrast when imaging
      - Risk of aspiration
      - Effects quality of subsequent endoscopy

Imaging Foreign Bodies: Ingested, Aspirated, and Inserted.

- The Bad
  - Ingested blunt objects
    - Long (>6cm)→endoscopic removal
      - Difficulty passing duodenal C-loop
      - Perforate at ligament of tritz
    - wide (>2.5cm)→endoscopic removal
      - Difficulty passing pylorus
  - Inserted [rectal] blunt objects
    - Image before finger→2-view radiographs
    - Surgical Removal (likely)
      - >10cm objects
      - in for more than 2 days
      - Sharp
      - located in sigmoid
  - Aspirated foreign bodies
    - Right bronchial tree—most common
    - Nuts—most common
    - Plain radiographs→2/3rds of x-rays negative on one study
      - Findings: atelectasis, hyperinflation, consolidation, mediastinal shift, and radiopaque FB
      - Fluoroscopic dynamic evaluation of diaphrams
    - Do not delay intervention!!

Imaging Foreign Bodies: Ingested, Aspirated, and Inserted.

- The Ugly
  - Sharp objects
    - Esophagus or within reach→endoscopic removal
    - Past duodenum→daily radiographs
      - 35% can lead to perforation
    - **Plastic bread bag clips→really ugly and invisible on plain radiographs ar**
  - **Button batteries**
    - **Esophagus→Endoscopic removal**
      - Serial radiographs once past GE junction
    - **Batteries >2cm**
      - **"Halo" sign**
      - **Endoscopy if in stomach greater than 48hrs**
  - Magnets
    - Esophagus or within reach→endoscopic removal
    - Plain radiographs→look for stacking or tandem appearance
  - Body packers
    - Plain radiographs→false negative rate of 23%
    - Surgical removal if symptomatic→NO endoscopy



http://rebelem.com/wp-content/uploads/2017/08/Button-Battery-XR-scielo.br_.jpg

Pelvic Inflammatory Disease

- Brunham, et al
- Background
  - Definition→an infection-induced inflammation of the female upper reproductive tract
  - Etiology
    - Acute (<30 days duration)
      - 85%→sexually transmitted pathogens or bacterial vaginosis-associated microbes
      - 15%→respiratory or enteric organisms in lower genital tract
    - Subclinical
      - Chlamydia and gonorrhea
      - Note: relationship with tubal-factor infertility
    - Chronic (>30 days duration)
      - TB and Actinomyces species
    - Mycoplasma genitalium→lots of talk in the article, ? significance
  - Good news!—rates and severity have decreased in the last 2 decades
  - Prevention is the key
    - Screenings, condoms, etc

Pelvic Inflammatory Disease

- Diagnosis
  - "Clinical diagnosis of PID is imprecise"
    - Physical Examination
      - Pelvic organ tenderness→CMT, adnexal tenderness, uterine tenderness
        - High sensitivity but low specificity
      - Lower genital tract inflammation
        - Cervical discharge
        - Cervical friability
        - Increased WBCs on wet mount
    - Laboratory
      - Nucleic Acid Amplification tests for gonorrhea and trachomatis
      - UPT→rule out ectopic
      - HIV test→HIV increases risk of TOA
      - **ESR or CPR→elevated result increases specificity of PID**
  - Other modalities→not conducive in the ED
    - Laproscopy
    - Transcervical endometrial aspiration
    - Transvaginal ultrasound
    - MRI
    - Power doppler study

Pelvic Inflammatory Disease

- First Line Treatment

<table>
<tr><td colspan="5">Mild-to-Moderate PID: Outpatient Regime</td></tr>
<tr><td rowspan="3">Doxycycline 100mg PO x 2 wks</td><td rowspan="3">+</td><td>Ceftrixaone 250mg IM x 1</td><td rowspan="3">+/-</td><td rowspan="3">Flagyl 500mg PO BID x 2 weeks</td></tr>
<tr><td>Cefoxitin 2mg IM + Probenicid 1g Orally x 1</td></tr>
<tr><td>Other 3rd gen cephalosporin</td></tr>
<tr><td colspan="5">Moderate-to-Severe PID with or without tubo-ovarian abscess: Inpatient Regime</td></tr>
<tr><td>Cefotetan 2g IV q12h</td><td rowspan="2">+</td><td colspan="2" rowspan="2">Doxycycline 100mg PO or IV q12h</td><td rowspan="3">Note: Use PO doxy when possible or convert to PO ASAP.</td></tr>
<tr><td>Cefoxitin 2g IV q6h</td></tr>
<tr><td>Clindamycin 900mg IV q 8h</td><td>+</td><td colspan="2">Gentamicin 3-5mg/kg IV qd</td></tr>
</table>

Pelvic Inflammatory Disease

- Treatment Notes
  - Quinolones
    - Gonorrhea acquired resistance
    - Work against M. genitalium
  - Zithromax
    - Monotherapy (+/- flagyl)
      - 500mg IV qd x 1-2days, then 250mg PO qd x 12-14 days
    - Combination
      - 1g PO once a week x 2 weeks + ceftriaxone 250mg IM x 1
  - Alternate Parentral Regime
    - Amp/Sulbactam 3g IV q6h + Doxycycline 100mg BID PO or IV

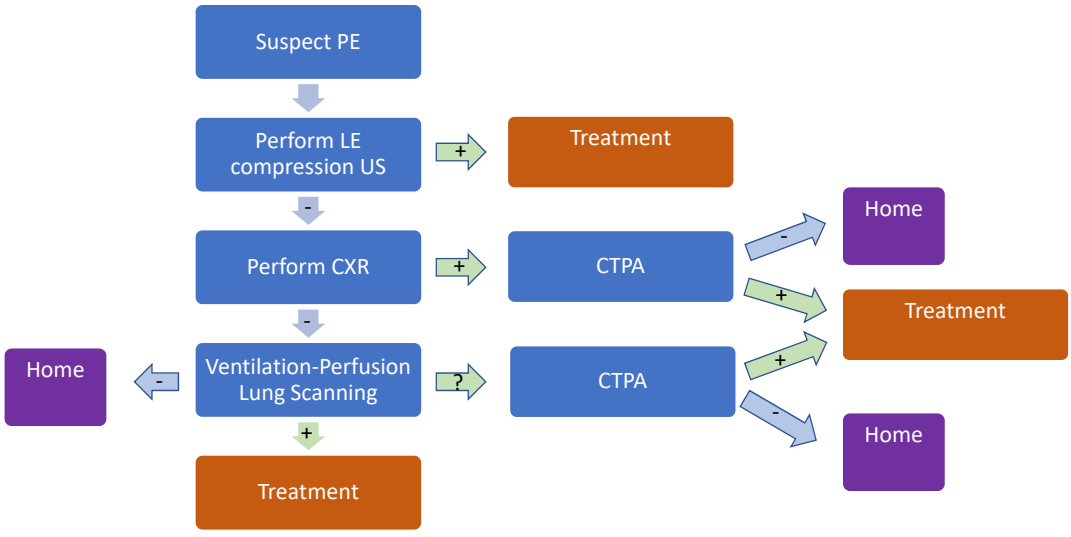
Pregnancy Complicated by Venous Thrombosis

- Greer, et al
- Background
  - Leading cause of maternal mortality/morbidity
  - When compared to Non-pregnant patients
    - Left leg
    - Proximal→iliofemoral veins
    - Greater risk of embolic events and post-thrombotic syndrome
    - 5x greater risk
  - >50% occur before 20 weeks gestation (Wow—did not know that)
- Risk Factors
  - Hyperemesis
  - High BMI
  - Immobility
  - Thrombophilias
  - C-section

Pregnancy Complicated by Venous Thrombosis

- Diagnosis
  - DVT
    - Compression ultrasonography
      - Must include iliofemoral region
      - If negative + high clinical suspicison→repeat test in 3-7 days
    - MRI/Venography
      - If suspect iliocaval thrombus + US cannot detect
  - PE
    - CXR→alternate diagnosis or non-specific findings
    - ECG→alternate diagnosis or non-specific findings of right heart strain
  - D-Dimer
    - Use NOT recommended
    - Levels increase progressively during pregnancy
  - Clinical Decision Support Tools
    - "LEFT" Rule
      - Left calf circumference >2cm from right
      - Edema
      - First Trimester
    - Modified Wells

Pregnancy Complicated by Venous Thrombosis



Pregnancy Complicated by Venous Thrombosis

- Diagnosis
  - Radiation risks?
    - Fetal Radiation Dose
      - CXR—<0.1 mGy
      - **CTPA—0.1 mGy**
      - **V-P Scanning—0.5 mGy (can be minimized by eliminating Ventilation component)**
        - **SO→CPTA and V/Q Scanning result in SIMILAR radiation dose to fetus**
    - Breast tissue
      - CTPA—20 mGy
        - Doses > 10 mGy "MAY" be associated with small increase risk of breast CA
- Treatment
  - **LOW MOLECULAR WEIGHT HEPARINS—TREATMENT OF CHOICE**
    - Hold 24 hours before scheduled delivery→minimizes bleeding + allows an epidural
    - Use real weight
    - Ideal regime not established→may do once a day or twice daily
  - Coumadin
    - Use in post partum cases
    - Do NOT use in pregnancy→crosses placenta + teratogenic
  - Compression stockings→help with pain and swelling
    - No help preventing post-thrombotic syndrome

Elder Abuse

- Lachs, et al
- Rates of Elder Abuse
  - 7.6% to 10%
- 5 Types of Elder Abuse
  - Physical—acts done with intention to cause pain/injury
  - Psychological/Verbal—acts done intention to cause emotional pain/injury
  - Sexual—nonconsensual sexual contact of any kind
  - Financial exploitation—misappropriation of money or property
  - Neglect—failure of a designated caregiver to meet needs of dependent older person

➢Look at Table 1

Elder Abuse
Table 1

Type of Abuse	Manifestations	Assessment and Notable Findings
Physical abuse	Abrasions Lacerations Bruises Fractures Use of restraints Burns Pain Depression Delirium with or without worsening of dementia or dementia-related behavioral problems	Ask directly how injuries were sustained; note findings that are discordant with the mechanism of injury reported. Color of bruises does not reliably indicate their age; bruising can occur spontaneously in older adults in the absence of documented or recollected trauma.[1] Older adults may bruise spontaneously or without apparent awareness of injury. Injuries to the head, neck, and upper arms occur in victims of physical elder abuse, but they must be distinguished from accidental injuries caused by falls and other trauma. Jaw and zygomatic fractures are more likely to be sustained in a punch to the face than in a fall (falls typically result in fractures to orbital and nasal bones). Long-bone fractures can occur spontaneously in the absence of physical abuse in patients who are confined to bed. Ankles and wrists should be examined for abrasions suggestive of the use of restraints. Multiple injuries in various stages of healing should raise the suspicion of abuse (e.g., lacerations healing by secondary intention [i.e., without sutures] and old, unset fractures detected on radiographs). The mouth should be examined for dental fractures and avulsion of teeth. A formal assessment for pain should be conducted (this may be difficult in patients with cognitive impairment). Screen formally for depression, ideally with the use of an instrument such as the Geriatric Depression Scale. The patient should be assessed for delirium (or worsening of dementia or dementia-related behavioral problems), which can result from pain or other medical problems. The interview should be conducted alone with the patient; it may reveal discordant histories or findings inconsistent with the history provided by the caregiver.
Verbal or psychological abuse	Direct observation of verbal abuse Subtle signs of intimidation, such as deferring questions to a caregiver or potential abuser Evidence of isolation of victim from both previously trusted friends and family members Depression, anxiety, or both in the patient	Ask specifically about verbal or psychological abuse with questions such as "Does your son or daughter ever yell or curse at you?" "Have you been threatened with being sent to a nursing home?" "Are you ever prevented from seeing friends and family members whom you wish to see?" Assess the size and quality of the patient's social network (beyond the suspected abuser) with questions such as "How many people do you see each day?" "How many do you speak to on the telephone?" "Is there anyone to assist you in the event of accident or emergency?" "Who would that be?" Conduct standardized assessments of depression, anxiety, and cognition, directly or through referral. Other types of abuse are often concurrent with verbal abuse. Office staff (clinical and front desk) should be encouraged to report verbally abusive behavior to the physician if they observe it.
Sexual abuse	Bruising, abrasions, lacerations in the urogenital area or abdomen Newly acquired sexually transmitted diseases, especially in nursing home residents (and especially in cluster outbreaks) Urinary tract infection	Inquire directly about sexual assault or coercion in any sexual activity. Conduct a pelvic examination with collection of appropriate specimens or refer to emergency department for comprehensive assessment for sexual assault and collection of specimens. Ideally, forensic evidence should be collected by experienced professionals, such as nurses who have undergone Sexual Assault Nurse Examiners (SANE) training. A common form of geriatric sexual assault involves a hypersexual resident with dementia in a long-term-care facility assaulting other residents who may or may not also have cognitive impairment.[2] This situation raises fundamental issues about the capacity of older persons with dementia to consent to sexual activity. For outpatients with dementia, direct queries to caregivers about hypersexual behavior as part of a larger history regarding dementia-related behaviors. Signs of sexual abuse are similar to manifestations of sexual violence in younger adults.

Elder Abuse

- Risk Factors
  1. Older Women
  2. Younger age
  3. Shared living environment—especially larger number of non-spouse household members
  4. Lower income
  5. Isolation/lack of social supports
  6. Dementia
  7. Functional impairment/poor physical health
- Perpetrators
  1. Adult children or spouses
  2. Male
  3. History of substance abuse
  4. Mental or physical health problems
  5. History of trouble with police
  6. Socially isolated
  7. Financial problems
  8. Experiencing major stress

Elder Abuse

- Clinical Evaluation
  - Routine screening→not recommended
  - Challenges
    - Cognitive impairment→may not be able to articulate
    - Concealment by victim
    - Chronic illness→false negative and false positive findings
    - Cultural and language barriers
    - Definitive determination may take time
  - Assessment strategies
    - **Separate victims and possible perpetrators (if possible)**
      - **Best means to assess the etiology of an injury**
      - Interview of possible perpetrators best left to experts
    - Indirect questions→may be less threatening
    - Direct questions→if necessary
    - Home visit→while not immediately relevant in ED, we can initiate the process

Elder Abuse

- Interventions
  - Successful intervention→"typically interprofessional, ongoing, community-based, and resource-intensive."
  - **Role of EP**
    - **Recognize and Identify—Most important!!**
    - Know community resources
      - Adult Protective Services
      - Aging and Disability Resource Center
    - Report/Refer
      - Mandatory Reporting in WI→Wis. Stats. §46.90
- Elder Abuse in LTC
  - Be alert→high prevalence of mistreatment
  - May be due to resident-to-resident aggression

Managing Suicidal Patients in the Emergency Department

- Betz, et al.
- "8% of ALL adult patients, regardless of chief complaint, have had recent suicidal ideation or behaviors"
- Difficult
  - Patients
  - Counties
  - Wisconsin laws—physician's role
- General Approach
  - Collateral sources of information
  - Safety precautions
    - Leaving
    - Safe room
    - Restraints—least restrictive
  - "Focused" medical assessment
    - "routine diagnostic testing" NOT recommended

Managing Suicidal Patients in the Emergency Department

- Suicide Risk Assessment
  - Alcohol→Acute and chronic use raises risk of suicide
    - Use alone does not limit psychiatric evaluation if cognitive capacity exists
  - Use a decision support tool to help identify low risk v. high risk
    - SAFE-T (Suicide Assessment Five-Step Evaluation and Triage)
    - **Low risk patients**
      - **No plan or intent**
      - **No previous attempt**
      - **No h/o significant mental illness**
      - **No h/o significant substance abuse**
      - **No agitation or irritability**

https://store.samhsa.gov/product/SAFE-T-Pocket-Card-Suicide-Assessment-Five-Step-Evaluation-and-Triage-for-Clinicians/sma09-4432

Managing Suicidal Patients in the Emergency Department

Managing Suicidal Patients in the Emergency Department

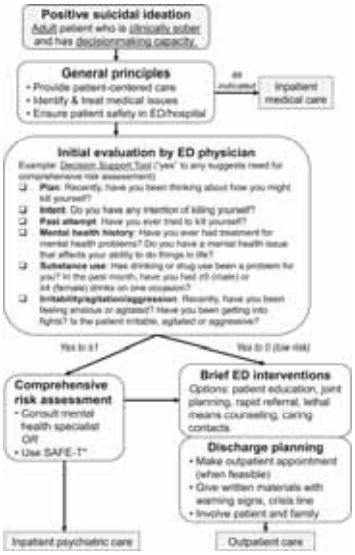
- Interventions
  - "Recommended interventions focus on helping patients develop skills to recognize and cope with suicidal thoughts…"
  - Specific interventions (Table p. 280)
    - Patient education
    - Safety planning
      - NOT same as "contracting for safety"
      - Structured*
    - **Lethal means counseling**
      - **Guns=highest suicide case fatality rate**
      - **An intervention shown to decrease the likelihood of fatality from suicide attempts**
    - Rapid referral
    - Caring contacts→not family, but rather ED calls back
  - Disposition
    - Acute crisis with moderate/high risk→hospitalization
    - **Acute crisis with low risk→Outpatient care (if feasible)**

Managing Suicidal Patients in the Emergency Department

24 year old male presents with vague suicidal thoughts. Recently broke up with girlfriend. Normal vitals and physical examination. He is not intoxicated. He has:

- Caring family
- No alcohol/drug use
- No access to guns
- No prior psych history

What is the best disposition?



Annals of Emergency Medicine 2016 67, 276-282DOI: (10.1016/j.annemergmed.2015.09.001)

Shared Decision-Making in the Emergency Department: Respecting Patient Autonomy when Seconds Count.

- Hess, et al
- Background
  - Jandre
  - Wis. Stats. §448.30 “Informed Consent”

448.30 Informed consent. Any physician who treats a patient shall inform the patient about the availability of reasonable alternate medical modes of treatment and about the benefits and risks of these treatments. The reasonable physician standard is the standard for informing a patient under this section. The reasonable physician standard requires disclosure only of information that a reasonable physician in the same or a similar medical specialty would know and disclose under the circumstances. The physician's duty to inform the patient under this section does not require disclosure of:

(2) Detailed technical information that in all probability a patient would not understand.
(3) Risks apparent or known to the patient.
(4) Extremely remote possibilities that might falsely or detrimentally alarm the patient.
(5) Information in emergencies where failure to provide treatment would be more harmful to the patient than treatment.
(6) Information in cases where the patient is incapable of consenting.
(7) Information about alternate medical modes of treatment for any condition the physician has not included in his or her diagnosis at the time the physician informs the patient.

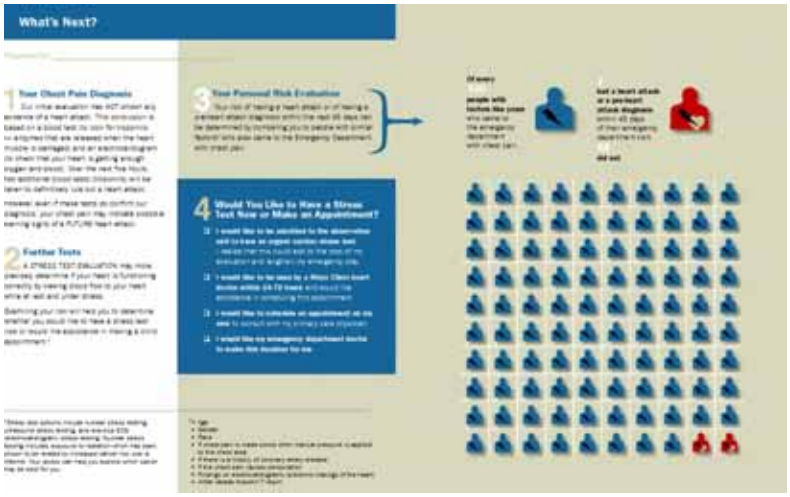
Shared Decision-Making in the Emergency Department: Respecting Patient Autonomy when Seconds Count.

- 8 characteristics of high quality and safe care (patient perspective)
  - Respect for patient's values, preferences, and expressed needs
  - Coordination and integration of care
  - Information, communication, and education
  - Physical comfort, especially optimal pain management
  - Emotional support and alleviation of fear and anxiety
  - Involvement of friends and family, where appropriate
  - Family members and close friends can have a substantially greater effect on a patient's experience of illness than any health care professional
  - Continuity of care, including care transitions
  - Timely access to care

Shared Decision-Making in the Emergency Department: Respecting Patient Autonomy when Seconds Count.

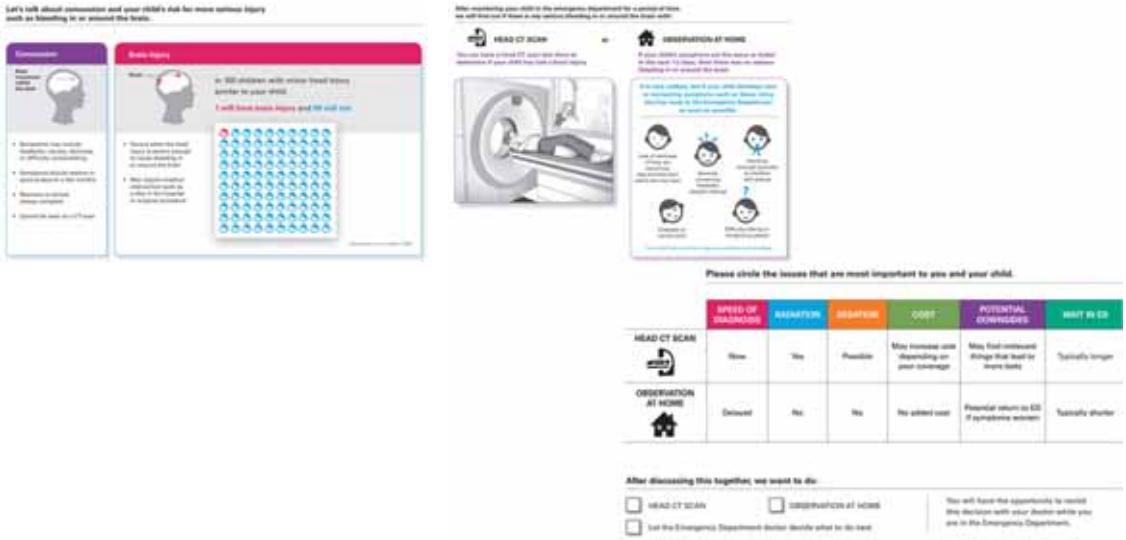
- How do you do this in a busy ED?
  - Perceived barriers (physician's perspective)
    - Preference for physician to decide
    - Too complicated for patient to understand
  - Key principle: assessment of patient's capacity to understand harms and benefits of options
  - "Choice" decision aides
    - Examples
      - **Chest Pain Choice—this stuff works!**
        - **RCT→Use of this SDM decision aid (as compared to usual care) in patients at low risk for CAD showed:**
          - **Increased knowledge and engagement in decision-making**
            - **Presumedly leading to better patient satisfaction scores**
          - **Lower rate of observation unit admission for stress testing**
          - **Lower rate of stress testing within 30 days of ED visit**
      - Head CT Choice

Shared Decision-Making in the Emergency Department: Respecting Patient Autonomy when Seconds Count.



The Chest Pain Choice Decision Aid, Volume: 5, Issue: 3, Pages: 251-259, DOI: (10.1161/CIRCOUTCOMES.111.964791)

Can You Multitask? Evidence and Limitations of Task Switching and Multitasking in Emergency Medicine.



Shared Decision-Making in the Emergency Department: Respecting Patient Autonomy when Seconds Count.

- SDM and the Charles et al. Model
  - 3 distinct but related models
    - Paternalistic
    - Shared
    - Informed
  - 3 analytical stages within each model
    - Information exchange
    - Deliberation
    - Choice

Shared Decision-Making in the Emergency Department: Respecting Patient Autonomy when Seconds Count.

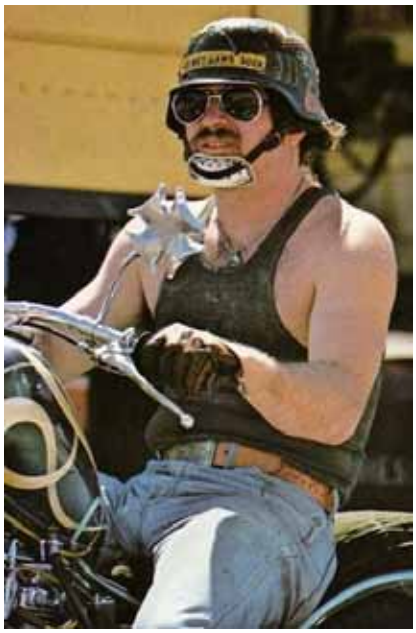
Table 2
Three Distinct but Dynamically Related Models of Medical Decision-making*

Analytical Stages	Models	Paternalistic	(In-between Approaches)	Shared	(In-between Approaches)	Informed
Information exchange	Flow Direction Type Amount	One-way Physician → patient Medical Minimum legally required		Two-way physician ↔ patient Medical and personal All relevant for decision-making		One-way Physician → patient Medical All relevant for decision-making
Deliberation		Physician alone or with other physicians		Physician and patient (plus potential others)		Patient (plus potential others)
Decision		Physicians	Provider-led and patient opinion sought/offered; patient acknowledges and agrees	Physician and patient	Patient-led and provider opinion sought/ offered; provider acknowledges and agrees	Patient

*Taken from Lin and Fagerlin,[13] which was adapted with permission from Charles et al.[14]

4 criteria that must be met to be SDM according to Charles Model

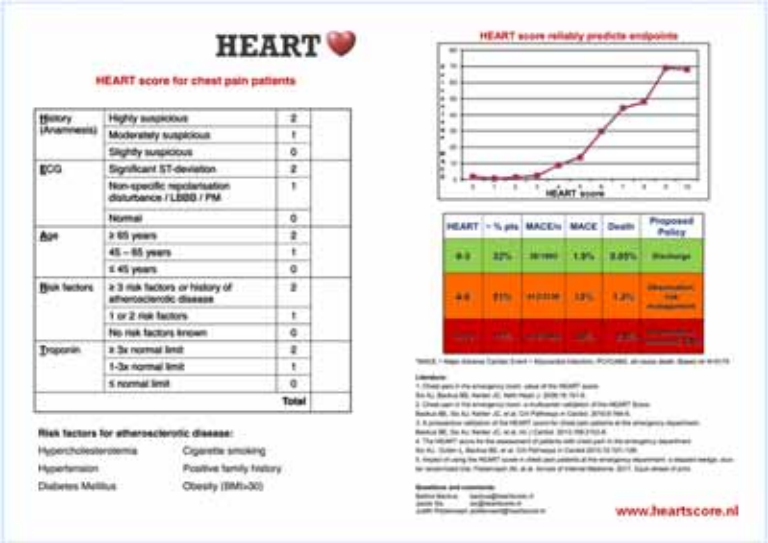
1. At least 2 participants—patient and clinician
2. Information must be shared between participants
3. Steps taken to build consensus on preferred treatment
4. An agreement on which treatment to implement must be reached



The HEART Pathway Randomized Trial: Identifying Emergency Department Patients with Acute Chest Pain for Early Discharge.

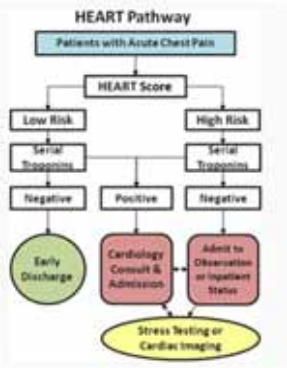
- Mahler, et al.
- Why is this relevant?
  - Overtriage→>50% of ED patients triaged to a comprehensive cardiac eval
    - Cost=$10-30 Billion annually
    - <10% ultimately diagnosed with ACS
  - ACC/AHA Recommendations
    - Low risk patients→serial markers + objective cardiac testing
      - Many false positives
      - Many non-diagnostic tests
  - EPs have been seeking the "holy grail" for decades
- Enter the Heart Score

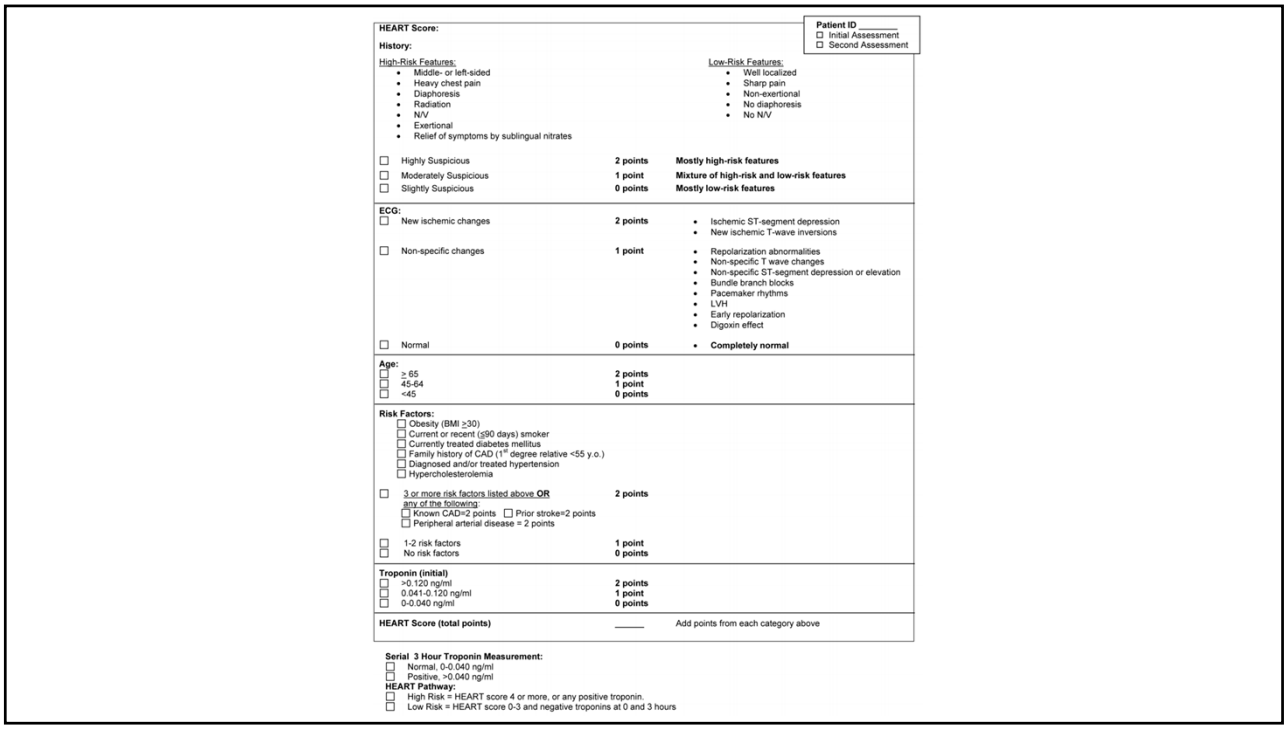
The HEART Pathway Randomized Trial: Identifying Emergency Department Patients with Acute Chest Pain for Early Discharge.



The HEART Pathway Randomized Trial: Identifying Emergency Department Patients with Acute Chest Pain for Early Discharge.

- Study Goal
  - Reduce objective testing (low risk patient's discharged with no further work-up planned)
  - Increase early discharges
  - Reduce index hospital LOS
  - Maintain high sensitivity and NPV (>99%) for MACE
- Study Design
  - Randomized—HEART Pathway v Usual Care
  - Serial Trops @ hours 0 and 3
  - Low risk=Heart Score 0-3
    - D/C without further testing
  - High Risk=Heart Score 4-10





HEART Score:

Patient ID _____
☐ Initial Assessment
☐ Second Assessment

History:

High-Risk Features:		Low-Risk Features:
• Middle- or left-sided • Heavy chest pain • Diaphoresis • Radiation • N/V • Exertional • Relief of symptoms by sublingual nitrates		• Well localized • Sharp pain • Non-exertional • No diaphoresis • No N/V
☐ Highly Suspicious	**2 points**	**Mostly high-risk features**
☐ Moderately Suspicious	**1 point**	**Mixture of high-risk and low-risk features**
☐ Slightly Suspicious	**0 points**	**Mostly low-risk features**

ECG:

☐ New ischemic changes	**2 points**	• Ischemic ST-segment depression • New ischemic T-wave inversions
☐ Non-specific changes	**1 point**	• Repolarization abnormalities • Non-specific T wave changes • Non-specific ST-segment depression or elevation • Bundle branch blocks • Pacemaker rhythms • LVH • Early repolarization • Digoxin effect
☐ Normal	**0 points**	• **Completely normal**

Age:

☐ ≥ 65	**2 points**
☐ 45-64	**1 point**
☐ <45	**0 points**

Risk Factors:

☐ Obesity (BMI ≥30)
☐ Current or recent (≤90 days) smoker
☐ Currently treated diabetes mellitus
☐ Family history of CAD (1st degree relative <55 y.o.)
☐ Diagnosed and/or treated hypertension
☐ Hypercholesterolemia

☐ 3 or more risk factors listed above **OR** any of the following: ☐ Known CAD=2 points ☐ Prior stroke=2 points ☐ Peripheral arterial disease = 2 points	**2 points**
☐ 1-2 risk factors	**1 point**
☐ No risk factors	**0 points**

Troponin (initial)

☐ >0.120 ng/ml	**2 points**
☐ 0.041-0.120 ng/ml	**1 point**
☐ 0-0.040 ng/ml	**0 points**

HEART Score (total points) _____ Add points from each category above

Serial 3 Hour Troponin Measurement:
☐ Normal, 0-0.040 ng/ml
☐ Positive, >0.040 ng/ml

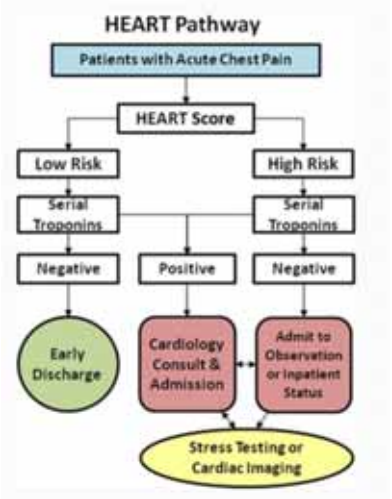
HEART Pathway:
☐ High Risk = HEART score 4 or more, or any positive troponin.
☐ Low Risk = HEART score 0-3 and negative troponins at 0 and 3 hours

The HEART Pathway Randomized Trial: Identifying Emergency Department Patients with Acute Chest Pain for Early Discharge.

- Study Results
  - Only 282 patients enrolled
  - Cardiac Testing Rate
    - Pathway—56.7%
      - But→31.8% in the low risk group got tested (3% were positive)
    - Usual Care—68.8%
  - Early Discharge
    - Pathway—39.7%
      - Low Risk LOS—6.4 hours
      - High Risk LOS—25.9 hours
    - Usual Care—18.4%
      - LOS—21.9 hours
  - MACE at 30 days
    - Pathway: Low Risk—0
      - High Risk→15%
    - Usual Care—13.5%

The HEART Pathway Randomized Trial: Identifying Emergency Department Patients with Acute Chest Pain for Early Discharge.

42 year old female presents to the ED complaining of 15 minutes of non-exertional chest pain. Started while watching TV. Occurred 3 hours ago. Well-localized. No other high risk features. Cardiac risk factors include obesity and smoking. No PMHx. Normal vitals and exam. ECG normal. Troponins at 0 and 3 hours negative. According to the HEART Pathway, what should be her disposition?



The HEART Pathway Randomized Trial: Identifying Emergency Department Patients with Acute Chest Pain for Early Discharge.

- Limitations
  - 31.8% of the Low Risk group still got testing done
    - 8/66 (12%) done as outpatient
    - Why?
      - Comfort level??
  - 29% of the Low Risk group still got admitted (Inpatient or Obs)
  - Many places do not have the high sensitivity troponin (study used the ADVIA Centaur platform TnI-Ultra assay)
  - Study not powered to detect a difference in MACE
    - Even though the authors talk about it and use as justification
  - Enrolled population was small

Finding the Holy Grail is not a Short-Term Project.

- Atzema, et al.
- Editoral to preceding article
- Holy Grail
  - A tool with high sensitivity with lower confidence interval of 99% + high specificity to identify a substantial proportion of CP patients for ED discharge
- What is an acceptable miss rate?
  - 1% ??
- The Question and critic: Is a decrease in objective cardiac testing [up to 30 days] after ED visit a good thing?
  - A one size fits all approach may not achieve the 1% miss rate
- What we really want?
  - Reduce unnecessary objective cardiac testing, NOT ALL cardiac testing

The following article is dedicated to Carey Chisholm

Can You Multitask? Evidence and Limitations of Task Switching and Multitasking in Emergency Medicine.

- Skaugset, et al.
- Definitions
  - Multi-tasking: simultaneous performance of 2 discrete tasks
    - Can only occur when the 2 tasks are automatic
  - **Task switching: changing between 2 separate tasks**
    - **Interruption: a type of task switching in which the original task is returned to after a brief switch**
    - **Break in task: a new task is started as a result of the task switch**
    - **Example: You are looking at a CXR and a nurse comes up to you and asks you for a prescription for a patient you just discharged. You write the script before returning to the CXR.**
- Prior studies
  - Chisholm et al
    - In 2000 article→EPs experienced a mean 31 interruptions in 180 minutes
      - That's 124 interruptions in my 12 hour shift!!
  - Westbrook et al
    - Interrupted tasks less likely to be completed v. uninterrupted tasks

Can You Multitask? Evidence and Limitations of Task Switching and Multitasking in Emergency Medicine.

- How the brain works
  - External and internal interruptions
  - Cognitive load
    - The mental processing requirements that affect use of limited working memory (short term)
    - 3 types
      - Intrinsic—the difficulty of the task itself
      - Extrinsic—means by which a task or new information is presented
      - Germane—the building of mental structures that will subsequently be used to solve other similar tasks

Can You Multitask? Evidence and Limitations of Task Switching and Multitasking in Emergency Medicine.

- Effects of Task-switching
  - Distraction from the primary task
  - Mental delay
  - Prolonged duration of activity
  - Reduced quality/Increased risk of error
    - Especially just before completion of task or at key step
  - Increased workload

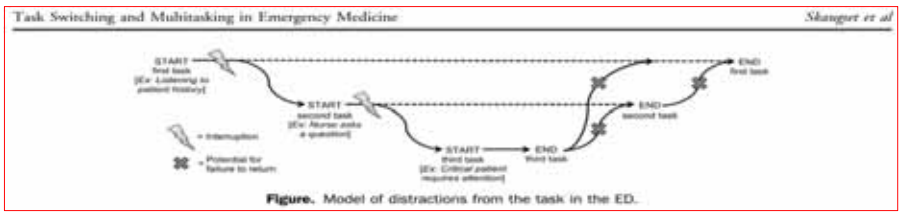


Figure. Model of distractions from the task in the ED.

Can You Multitask? Evidence and Limitations of Task Switching and Multitasking in Emergency Medicine.

- Ways to reduce interruptions (look at Table)
  - Provider Skills
    - We are expected to be able to task-switch (part of the 2011 Model of the Clinical Practice of Emergency Medicine)
    - Attend v. delay→learn to prioritize
    - Practice→repititon, improve knowledge base to recognize patterns
    - Heuristics→build and practice standard mental frameworks for repetitive work
  - Environmental Interventions
    - Minimize→reduce distractions such as unnecessary cross talk
    - Decrease anxiety→mindfulness
    - Situational awareness→train staff, set goals
    - Department work flow policies→train staff on dangers of interruptions
    - EMR cue optimization→order sets, documentation cues, reminders
    - Physical space design→quiet spaces, physical reminders

A Quick Poll

What is your preferred insertion site for central lines?

a. Internal Jugular
b. Subclavian
c. Femoral

What was your preferred insertion site right after residency?

a. Internal Jugular
b. Subclavian
c. Femoral

Intravascular Complications of Central Venous Catheterization by Insertion Site.

- Parienti, et al.
- Study Goal
  - Evaluate risk of catheter-related (48 hours)
    - blood-stream infection
      - Catheter tip colonized with same bug as blood stream culture
    - symptomatic DVT
      - Diagnosed by compression ultrasonography
- Study design
  - Adults
  - ICU setting (10 ICUs in France)
  - Randomized (1:1:1)
  - Resident or Attending with 50 prior procedures
  - Precautions taken to prevent catheter-related infections
  - US or anatomical landmarks used

Intravascular Complications of Central Venous Catheterization by Insertion Site.

- Study Notes
  - Median duration of catheter use—5 days
  - Femoral lines—fastest insertion
  - Insertion failure
    - 5%--Femoral
    - 8%--IJ
    - 15%--Subclavian
  - Use of anatomical landmarks
    - Subclavian—86%
    - Femoral—74%
    - IJ—33%

Intravascular Complications of Central Venous Catheterization by Insertion Site.

- Main results
  - Subclavian Lines—Big winner (kind of)
    - 50 primary outcome events
      - 8 Subclavian lines
      - 20 IJ lines
      - 22 Femoral lines
  - **Subclavian Lines—Most mechanical complications**
    - **18 events—subclavian lines**
      - **13 PTX—Most common complication for subclavian lines**
    - 12 events—IJ lines
      - 4 PTX
    - 6 events—Femoral lines

Intravascular Complications of Central Venous Catheterization by Insertion Site.

- Take aways
  - Subclavian lines→recommended in order to prevent catheter-related infection
    - Consistent with CDC guidelines
  - Risks of catheterization and DVT increase with catheter duration (not a primary endpoint in study)
- Limitations
  - Use of US not consistent→may have prevented some mechanical and infectious complications
  - ICU setting→more controlled??

Closing Comments

- We don't multitask→we task switch
- Bring back the subclavians
- Think pee with little ones
- Plastic bag clips—BAD!!
- SDM—don't confuse with BDSM. Its about 2-way communication and not dominance
- Pregnant women less than 20 weeks gestation get DVTs. Use LMWH
- PCCs are here. They are expensive but useful.
- HEART Pathway may not be the holy grail but useful
- PID still out there→treat it
- Be mindful of Elder abuse. Can be tricky. We are mandatory reporters.
- Get the guns away in suicidal patients.

Questions