



Implementation of an Emergency Medicine Pharmacy Residency

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ASHP Mid-Year Meeting, Las Vegas, NV; December 5, 2007



Objectives

- Overview of ASHP Guidelines for PGY-2 program
- Practical approach to ASHP Guidelines
- Necessary tools for pharmacists in Emergency Medicine
- Multidisciplinary support
- Ideal resident qualifications to survive in an ED
- Overview of program at SMH



ASHP PGY-2 Educational Goals

- Critical Care
- Infectious Disease
- Psychiatry
- Oncology
- Nuclear Medicine
- Cardiology
- Geriatrics
- Emergency Medicine?



Advanced Area of Practice Residency

- Knowledge Skills and Abilities (KSAs) required for an expert level of pharmacy practice in advanced area
- Practice site shall provide exemplary training environment
- Scope of services MUST be adequate for goals and objectives of the program



Assessment Strategy

- Follow RLS model
 - Midpoint
 - Summative
 - Self-Eval
 - Preceptor/Learning experience



Old Goal	New Goal - 2007 (generic PGY2)	Project	Acute Care Rotations	Urgent Care (longitudinal)	Drug Information/Drug Policy	Practice Management
S1	R1.1		T	T		
S2	R1.2		T	T		
S3	R1.3				T	
S4	R1.4		TE	TE	T	
S5	R1.5		TE+			
S6	R1.6		TE+			
S7	Interdisciplinary team No new		T	T	T	
S8	R1.2 ? Compassion for pts		T			
S9	R1.5	TE				
S10	R1.8	T	T	T	T	
S16	R1.7				T	
P1	R2.1		TE+			
P2	R2.2		TE+			
P3	R2.3		TE	TE		
P4	R2.4		T			
P5	R2.5		T			
P6	R2.6				T	



■ Just Kidding....



Practical Approach to ASHP Goals

- Deep breath in 😊
- Follow all requirements spelled out by ASHP
 - Principles 1-7 provide excellent guidelines
- Deep breath out 😊



ED is a Unique Practice

- Many safety mechanisms not available in ED
- Pharmacy USUALLY not present
 - NO DOUBLE CHECK
- JCAHO supports pharmacist double check on ALL medication orders



Unique Practice cont.

- High Patient Volume
- Verbal Orders
- HIGH STRESS situations



Reasons for Chaos

- One time orders
- Little patient history
- No other safety mechanism in place
- Changing gears
- Inpatients/outpatients co-mingling
- 4 times as many ED visits as OR in US!



Medication Errors in the ED

- ED has highest rate of preventable errors
- 110 MILLION ED patients yearly in US*
- 5% experience potential events
 - 70% of these are PREVENTABLE**

*National Center for Health Statistics.

**Harvard Medical Study



Let's Compare

- 77% of all ED medication errors between ordering phase and administration phase
- 23% of errors were discovered before patient received medication
- 39% in other area of hospital



Necessary Tools for Pharmacists in EM

- ACLS
- PALS
- ATLS/ABLS/AHLS/etc.
- Toxicology
- Disaster preparedness/MCI
- EMS/Pre-Hospital Care
- Critical Care ~ 10%
- Ambulatory Care ~ 90%



Why do EPh Need Training

- Completely new + unique practice
- Juxtaposition of critical needs with minimal time/maximum patient density
- Learning to thinking quickly on the run – not learned anywhere else



Mandatory Rotations

- Trauma Bay
- Adult Emergency Medicine
- Pediatric Emergency Medicine
- MICU
- BTICU
- Toxicology
- EMS
- PICU



Elective Rotations

- Psychiatry
- Cardiology
- Infectious Diseases/HIV
- SICU
- CCICU
- Drug Information



Longitudinal Rotations

- Ambulatory Clinic
- Research
- Trauma Council
- Emergency Preparedness
- EMS Protocol Committee



ACLS

- Advance Cardiac Life Support
- Important first step
- Covers in depth materials not well covered in most resident's classroom education
- Early integration into medical team



ACLS

- ACLS med review very quick
- ACLS pathophys. very in depth
- After ACLS – hands on training with all ACLS/Code medications
- Earn ACLS Instructor



Not all code meds are created equal



Mock Codes

- Combines team members from :
 - Medicine
 - Nursing
 - Respiratory
 - PHARMACY

- Promotes patient care as interdisciplinary



Mock Codes

- Promotes TEAMWORK
 - Team in its truest sense
- Gives sense of camaraderie
- Allows other teams to see what pharmacy can provide
- Allows for resident to see value
- Helps achieve Goals related to med expertise, education + continuity of care



Blue 100 : 24/7/365

- Residents rotate on monthly basis
- Currently only when in house
- University of Kentucky has 24/7/365
- Resident must pass one-on-one with clinical specialist before 'credentialed'



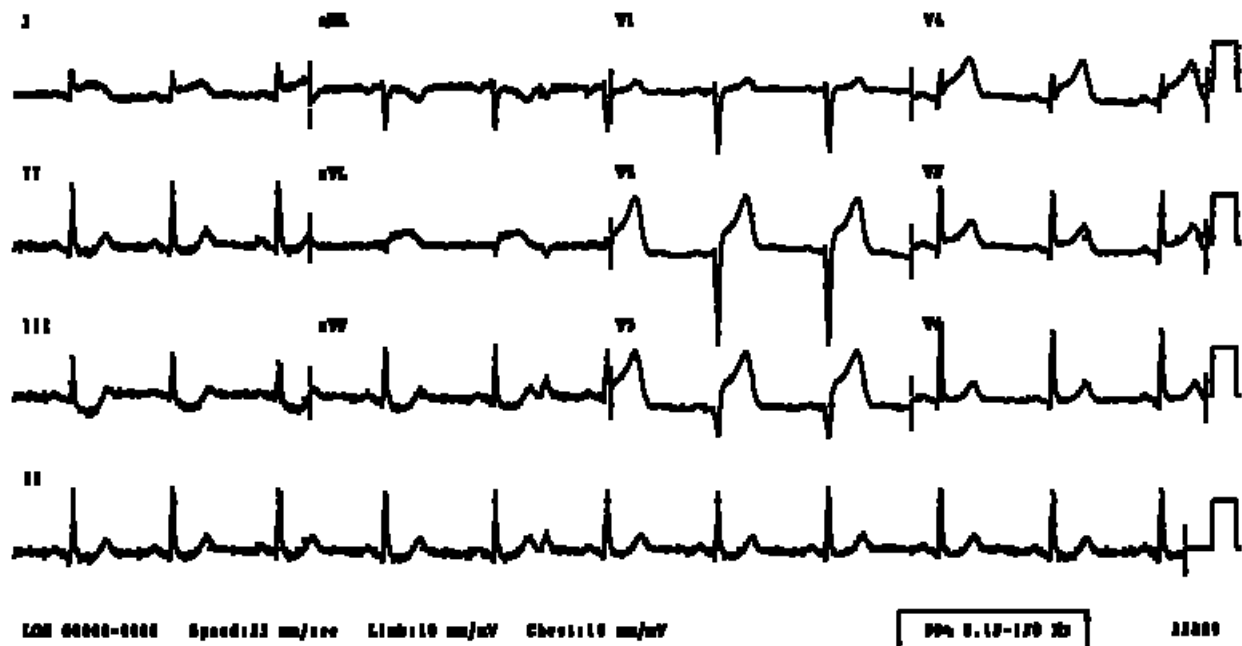
Patient Case

- 54 YOM presents complaining of chest pain
- PMH :
 - CAD, HTN, NIDDM
- HPI :
 - At work became diaphoretic, emesis + 10/10 Chest pain



Patient Case

- PE :
 - HR : 95
 - BP : 100/80
 - RR : 25
 - Skin : Diaphoretic
 - 10 out of 10 pain score





Treatment?

- Off to Cath Lab we go.....
- BB
- ASA
- IIb/IIIa inhibitor
- UFH
- Morphine



No Cath Lab

- Lytics
 - Or
- Cath Lab ASAP



Advance Life Support

- ATLS
 - Advanced Trauma Life Support
- ABLIS
 - Advanced Burn Life Support
- AHLS
 - Advanced HazMat Life Support
- Goals related to practice foundation skills



ATLS

- Much more mechanism than medication
- Allows for overview of trauma
- Not all trauma is equal
- Resident must complete Trauma rotation before eligible to attend trauma without clinical specialist present
- Same reasoning behind training for Blue 100



Trauma Rotation

- Resident spends 5-6 weeks in Trauma Bay
 - Penetrating Trauma
 - Blunt Trauma
 - Falls
 - Powertools, sharp objects, stupidity
 - Jerry Springer
- Strong experiential experience for all Patient Care Goals



Patient Case

- Medic Phone rings
- 35 YOM degloving injury from CS
- Request for Morphine Prehospital

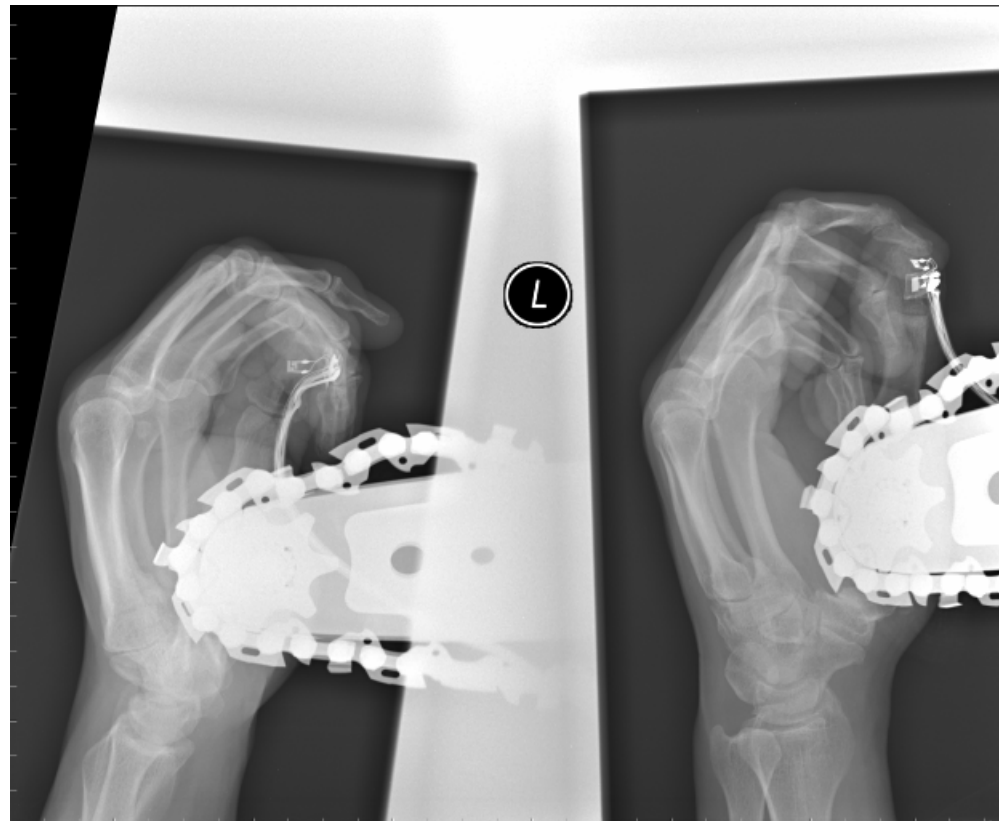


Patient Case

- 35 YOM presents complaining of 10 out 10 pain in L Hand
- PMH :
 - Depression
- HPI :
 - At work slipped with CS when cutting a tree



Patient Case





Treatment?

- Antibiotics
- Td
- Analgesia
- Surgery



ABLS

- Identify dangers to rescuer/patient
- Identify the role of medical control in managing the burn patient
- Determine the magnitude and severity of injury
- Identify and establish priorities of emergency care in the pre-hospital setting



Patient Case

- 40 YOM presents to community ED SP meth lab explosion
- PMH : Unknown
- CC : 45% BSA 3rd degree burn
- TX : ???



Disaster Preparedness

- AHLS
- Committee involvement
- Tabletop exercises
- Ability to think outside of the box
- Evaluate resident on Drug Information and Drug Policy Development



Toxicology

- Adult vs Pediatric
- Level of involvement
 - Poison Center Call
 - Active Tox Consult
- Incorporate all RLS Goals
 - Direct Patient Care
 - Drug Information/Documentation
 - Practice Foundation Skills



Tox Topics

- General Decon
- Supportive Care Measures
- Alcohols
- Salicylates
- TCA's
- Opioids
- Etc, Etc, Etc, Etc,



Patient Case

- 19 YOF presents in police custody
- HX of crack cocaine abuse
- Suspected of hiding paraphernalia
- PMH significant of drug abuse



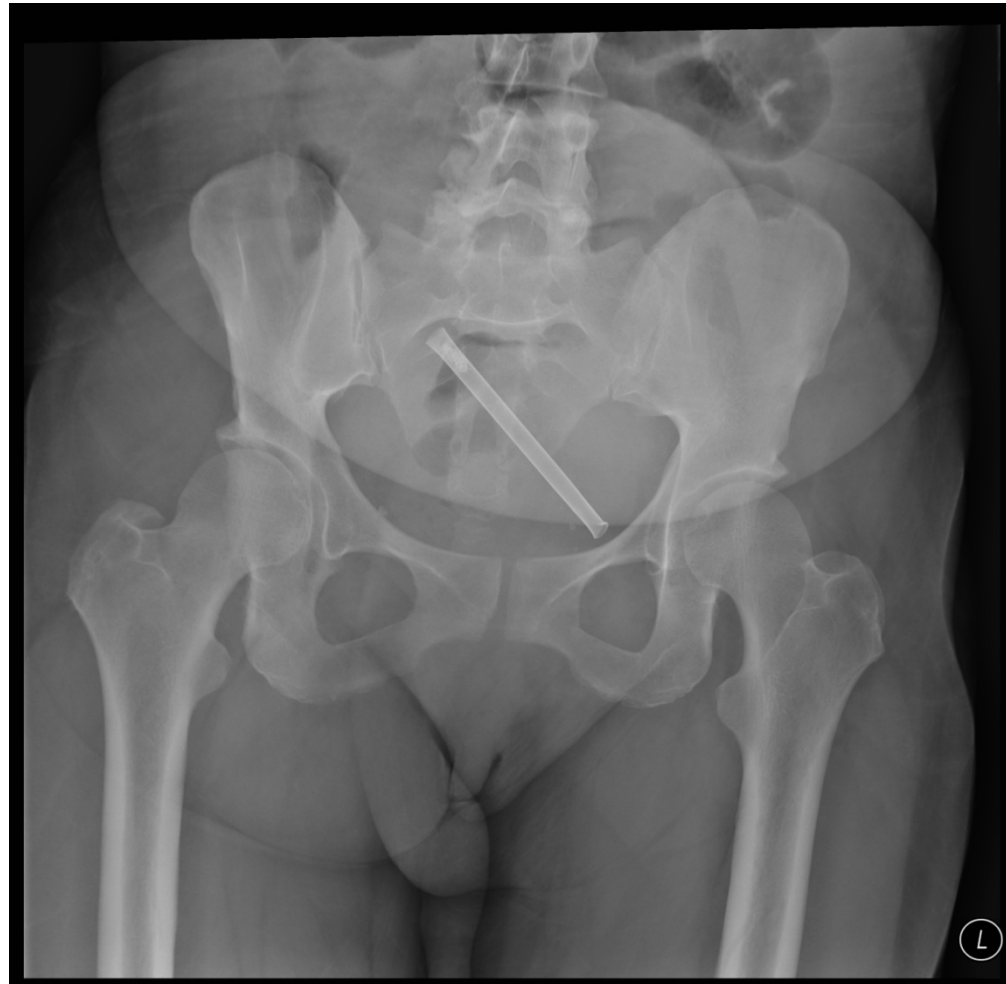
Patient Case

■ PE

- HR 110
- BP 160/110
- Diaphoretic
- RR 18
- Obese

■ CC

- abdominal pain
- Patient is intoxicated





EMS/Prehospital Care

- See care from start to finish
- Committee involvement
- Education of EMS personnel
- Rotation involving out of hospital exp.
- Incorporate
 - Practice Foundation
 - Practice Management



EMS Rotation Specifics

- 2 week ride-along
- Pre-hospital treatments
- Educational sessions
 - Provider
 - Patient
 - Team



Pediatric EM Training

- PALS
- Changing populations
- Pediatric trauma
- Behavior
- Tox
- Communication
- Social



PALS

- Pediatric Advanced Life Support
- Pediatrics make up 30% of all ED visits
- Children are NOT small adults



Pediatric Topics

- Changing Populations
 - Obesity
 - Asthma
 - Diabetes
 - Psych/Behavior
- Allergic Rxn
- Sepsis
- Trauma



Pediatric Care

- Social Issues
 - Neglect
 - Abuse
 - Parent/Guardian intervention
- Communication



Patient Case

- Medic Phone Rings
- 8 YOF acute asthma exacerbation
- Unable to obtain IV access
- Coming in RED



Patient Case

- 10 YOF presents NAD
- Bilateral 20g IV access
- PMH
 - Asthma, seasonal allergies
- HPI
 - Mom found her struggling to catch breath
 - Called EMS



Treatment

- In this particular case – nothing
 - In actual case
 - Steroids
 - Nebulized albuterol
 - Epinephrine
 - Terbutaline
 - Magnesium
 - Information....



Critical Care

- Rotations in MICU, CICU, BTICU
- Follow patients from ED to DC
- Essential to function



Ambulatory Care

- Majority of EM = primary care issues
 - Diabetes
 - Asthma/COPD
 - CHF
 - Reflux
 - Sprains, Strains + Muscle Aches
 - HIV Related Complications
 - URI, UTI, etc, etc, etc...



Multidisciplinary

- Cardiology
- Surgery
- Internal Medicine
- Psychiatry
- Etc...



Multidisciplinary Support

- Essential to have 'buy-in' from all specialists to ensure quality/broad training
- Resident opportunity to collaborate with other health care providers
 - promotes team work
 - team building skills



Resident Qualities

- Creative Thinking
- “I DON’T KNOW”
- Jump – How High
- Shout – How Loud
- Communication skills
- Energy Level
- Tolerance to Gore + Violence



Resident Training Needs

- Outlet to cope
- Time out
- 'Buddy'
- Customized training plan
 - Based on individual needs
 - Essential to monitor progress throughout
- Scrubs



Questions?



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