



# Clinical Pharmacy Services in the Emergency Department

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  - Rollin J. (Terry) Fairbanks, MD, MS



# ED is a Unique Practice

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



# ED is a Unique Practice

- High Patient Volume
- Verbal Orders
- HIGH STRESS situations



# Contributing Factors to Hazards

- Patients are strangers
- Multiple patients being treated at same time
- Wide range of medications utilized
- Interruptions/distractions
- ED Dispensing
- Time Constraints
- Tight Coupling



# 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 Practice 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



# University of Rochester Medical Center

- ED has > 120 beds
- Over 500 doses of medication dispensed per day
- Over 90,000 patient visits per year
  - 60,000 adults
  - 30,000 pediatrics
- Nationally ~ 3.5% of ED's have Pharm presence



# Pharmacist Duties in the Emergency Department

- Clinical
- Academic
- Research
- Administrative
- Distribution
- Emergency preparedness



# Clinical Duties

- Clinical Consultation
  - Attend rounds and present patient information
  - Dose recommendations
  - Therapeutic substitution
  - Disease state specific pharmacotherapy
  - Pharmacokinetics
  - Being available – and visible!!



# Clinical Duties

- Medication history
- Allergy screening
- Pregnancy medication consultation
- Weight based dosing
  - Pediatric
  - Obese
  - Geriatric
  - Disease specific (CF, FTT, etc)



# Clinical Duties

- Patient Education
  - Medication specific education
    - Asthma
    - Warfarin
    - LMWH
    - Diabetes
  - Discharge counseling



# Order Review

- Allergies
- Medication interactions
- Inappropriate
  - Dose
  - Route
  - Indication



**DO NOT USE ABBREVIATIONS:** U, IU, Q.D., Q.O.D., Trailing zero (X.0 mg), Lack of leading zero (.X mg), MS, MSO<sub>4</sub>, MgSO<sub>4</sub>, μg, T.I.W., A.S., A.D., A.U.

ers ing malignancy	MEDICATION		MG/KG/DOSE	
	Ciprofloxacin			
se Reactions	DOSE	ROUTE	FREQUENCY	
	400mg	PO	BID	
	INDICATION		TIME	DATE
			1440	9/18/0
	SIGNATURE/TITLE		PAGER NUMBER	
	[Signature] MD			
	MEDICATION		MG/KG/DOSE	
	Maalox			
	DOSE	ROUTE	FREQUENCY	
	30cc	IV	x1 Now	
	INDICATION		TIME	DATE
			1440	9/18/0
	SIGNATURE/TITLE		PAGER NUMBER	
	[Signature] MD			
	MEDICATION		MG/KG/DOSE	





# The Medication Process

- Prescribing
- Transcribing
- Dispensing
- Administering
- Monitoring
- Discharge Medications



# Prescribing

- Incomplete knowledge of medication
- Incomplete knowledge of patient
- Less access to
  - Patient medications prior to visit
  - Patient history



# Transcribing

- Verbal Orders
- Poor penmanship
- Team communication errors



# Dispensing

- Dispensed by nursing
- Dispensed by physicians
- Thorough counseling not available/performed



# Distribution

- Automated dispensing machines
- CPOE for admitted patients
  - Pharmacy System
  - PYXIS
- Pharmacist available for assistance



# Monitoring

- Parenteral administration
  - Esp cardiac medications, insulin, etc...
- Emergency procedures
- Inadequate personnel



# Public Awareness

- ASHP / ACCP involvement
- National EM/CC society involvement
- Publications
- AHRQ Grant
- ASHP Mentorship program



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