FAQs in Developing an Emergency Care Service

Patrick Bridgeman, Pharm.D.
Daniel Hays, Pharm.D., BCPS

Tuesday, April 20, 2010
3:00 – 4:00 PM EST

Planned by the ASHP Section of Clinical Specialists and Scientists Section Advisory Group on Emergency Care as a value added service for members practicing in the emergency department (ED).

TOGETHER WE MAKE A GREAT TEAM

Presenter

Dr. Bridgeman received his Pharm.D. from Rutgers University in 2006. He completed his residency in Emergency Medicine at Rutgers University and Robert Wood Johnson University Hospital. The following year he initiated an ED pharmacy program at New York-Presbyterian Hospital -Columbia University.

He currently works as a pharmacist in the emergency department at Robert Wood Johnson University Hospital. His current research interests include acute management of stroke, thrombolytic use in resuscitation, and pharmacokinetics in hypothermic states.

Patrick Bridgeman, Pharm.D.

Presenter

Daniel P. Hays, Pharm.D., BCPS was the founding emergency pharmacist at the University of Rochester Medical Center in Rochester, NY. He has recently initiated Emergency Pharmacy services at the University of Arizona/University Medical Center.

He received his Doctor of Pharmacy degree from the University of Minnesota in 2000. Dr. Hays started as a staff pharmacist at Strong Memorial Hospital where he developed clinical services within the department of emergency medicine.

He is the current director of the Emergency Medicine pharmacy residency program and serves on several key medical center committees. Dr. Hays was the previous chair of the ASHP Section of Clinical Specialists and Scientists Advisory Group on Emergency Care, network facilitator in emergency care and currently serves on the Educational Steering Committee.

Daniel P. Hays, Pharm.D., BCPS

Have you started an ED service?

A. In the last year
B. In the past 1-2 years
C. In the past 3-5 years
D. Greater than 5 years
E. Have not started a service yet but administration is thinking about it.

What type of institution do you practice in?

A. Community hospital < 100 beds
B. Community hospital 100- 200 beds
C. Community hospital > 200 beds
D. Academic Medical Center

If you currently working in an ED, what training do you have?

A. No training
B. PGY-1
C. Critical Care specialty training
D. Toxicology specialty training
E. Emergency Medicine specialty training

Learning Objectives

- Describe the first steps of implementation of pharmacy services in the ED.
- Evaluate steps of medication processes in the ED where pharmacists can provide benefits.
- Identify opportunities to increase value of pharmacy services in the ED.
- Prioritize implementation of pharmacy services in the ED.

Situation:

The pharmacy administration has informed you a pharmacy position in the emergency department is approved and you are taking the lead. You are excited about the possibilities but think, "What do I do now?".

FAQ: What's so different about clinical practice in the ED than in other patient care areas?

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

Reasons for Chaos

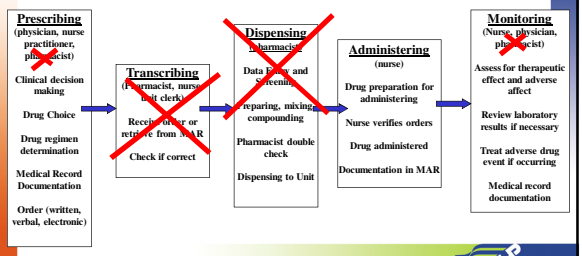
- One time orders
- Little patient history
- No other safety mechanism in place
- Changing gears
- Inpatients/outpatients co-mingling
- 4 times as many ED visits as OR in US!

Medication Errors in the ED

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

*National Center for Health Statistics

Structure + Function of the Medication Use System



The Medication Process

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

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/considered

Administration of Medications

- Multiplicity of medications
  - Therapeutic duplications
- Potency of medications
- Multiple patients in the ED
- Parenteral administration
- Drug incompatibilities
- Physician administration

Monitoring

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

IOM Report

- *Hospital-Based Emergency Care: At the Breaking Point*
  - Emergency Department (ED) crowding:
    - Over past decade, ED visits increased 26%.
    - The number of EDs declined 9% and hospitals closed 198,000 beds.
  - Ambulance diversion: When crowding reaches dangerous levels, ERs divert inbound ambulances..

IOM Report

- Uncompensated care: Everyone is legally entitled to emergency care, however no funding is provided This results in the inevitable closing of many ERs and trauma centers.
- Fewer "on-call" specialists: The rising costs of uncompensated care and fear of legal liability have led more specialists to opt out of taking ER call.
- Inadequate emergency preparedness: If ERs and trauma centers are already jammed with patients, how could they respond to a disaster or a terrorist strike?

IOM Report

- EDs not well equipped to manage pediatric care
  - Pediatrics make up 27% of ED visits
  - 6% of EDs prepared for pediatrics

FAQ: What can we contribute to the ED medication use process?

- Core knowledge of medications
- Skilled at analyzing medication-related processes and increasing medication safety
- Unbiased approach in evaluating new medications/treatment regimens
- Experience in attaining compliance with regulatory standards on medication related measures

FAQ: How do I become involved in these processes?

- Meetings with ED medical and nursing leadership.
  - Introductions
  - Be realistic
  - Current impressions and expectations of pharmacy services provided
  - Formulate checklist

FAQ: What is the most important to become involved with first?

- Quick and easy
- Provide value of emergency pharmacist (EPh) with objective measures
- Value departmentally as well as organization as a whole
- Short term vs Long term goals

Quick and easy examples

- Utilization of automatic dispensing cabinets
  - Expedite availability of needed medication
  - Streamline cost
- Issues Identified after brainstorming session with ED leadership
  - Code cart exchange policy
  - Premixed antibiotics

Enhancements in Medication Use Process

- Storage, Selection & Procurement
  - Limit the variety and quantity of medications stocked to *one standard concentration,* as much as possible
  - Elimination of look- and sound-alike medications
  - Medication alert labeling as needed
  - Evaluation of ED formulary needs

Enhancements in Medication Use Process

- Ordering and Transcribing
  - CPOE implementation
    - Scheduling of medication and lab orders
    - Patient allergies → available on all medication order screens
    - Critical care infusions → pre-build orders that include admixture, initial rate, and titration goal
    - Dedicated section for vaccine and immune globulin documentation
    - Incorrect patient orders → provider to view own patient list

Enhancements in Medication Use Process

- Preparing, Dispensing, and Administration
  - Increased clinical information resource modalities
    - Critical care medication guide
    - Pediatric dosing guidelines
    - Patient education materials review and revision of discharge instructions
    - Contribution to ED Intranet with clinical information and guidelines

Quality Improvement Initiatives

- Community Acquired Pneumonia
- Acute Myocardial Infarction
- Thrombolytics for Ischemic Stroke
- Sepsis Early goal direct therapy (EGDT)
- Ventilator Associated Pneumonia
- Advance Life support Algorithms
- Appropriate analgesic dosing

Quality Improvement Initiatives

- Provide objective endpoints on impact of EPh presence

Pneumonia Quality Measures

ED Medication Related Measures

- Time to initial antibiotic received of 4 hours
  - 15% relative reduction in 30-day mortality
- Initial antibiotic selection (ICU and Non-ICU)
  - Regimens covering most common and "atypical" pathogens improve survival
- Influenza vaccination
- Pneumococcal vaccination

Houck PM et al. *Archives of Internal Medicine*, 2004; 164:637-644. Mandell LA et al. *Clin Infec Dis*, 2003;37:1405-1433.

Pneumonia Quality Measures

- ED Quality Improvement Team
  - Developed CAP treatment algorithm
    - Enrollment from triage
    - EPh role in reviewing JC antibiotic recommendations vs. hospital's antibiogram and empiric recommendations
  - Developed tools for education and reminders for staff
    - EPh role in creating antibiotic treatment algorithm, pocket guides + resources on intranet

Pneumonia Quality Measures

- ED Quality Improvement Team
  - Developed of CAP order sheet
    - EPh driven and updated with recommendation changes
  - Oversight of protocol use
    - Oxygen saturation assessed
    - Blood Cx prior to ABX (if drawn)
    - Appropriate antibiotic within four hours of arrival

AMI Quality Measures

ED Medication Related Measures

- ASA on arrival
- Thrombolytics within 30 minutes
- CCL within 60 minutes

Acute Stroke

- 700,000 new or recurrent strokes annually
- $63 billion in direct and indirect cost
- Every 45 seconds, someone in the US has a stroke
- ~60% of hospitals do not have stroke protocols
- Nationally, <5% of patients with ischemic stroke are receiving tPA

Heart Disease and Stroke Statistics- 2007 Update, American Heart Association

Acute Stroke Quality Measures

- **A collaborative effort**
  - **The team**
    - ED Physician
    - Neurologist
    - ED Nurse
    - Dedicated Stroke Nurse
    - EPh
    - CT Technician

Acute Stroke Quality Measures

Goal:

- **Systematic approach to:**
  - Rapid distinction between ischemic stroke and ICH
  - IV tPA for appropriately selected patients
  - Management of hypertension, arrhythmias
  - Recognition/management of stroke deterioration
- **Multi-disciplinary team**
  - EPh member of Stroke Team

Sepsis Quality Improvement

Impact

- **750,000 cases annually**
- **215,000 deaths annually**
- **Projected growth of cases to 1,110,000 by 2020**
- **~400,000 patients with severe sepsis and septic shock present to the ED each year**

Sepsis Quality Improvement

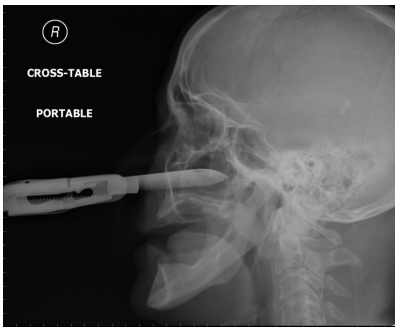
- ED Quality Improvement Team
  - Operating procedures
    - Developed protocolized algorithm
      - EPh leadership role on empiric antibiotic recommendations and vasopressor options
    - Developed dedicated "Sepsis" CPOE order panel
      - Joint venture between ED + ICU
    - Education of staff
      - EPh leadership on education of treatment goals
    - Oversight of protocol use during clinical shift

Quality Indicators

- Operative Patients
  - Received abx within one hour prior to incision
  - Antibiotic selection appropriate for condition
- Pain/sedation
  - Adequate treatment
  - Timely treatment
  - Adequate sedation in paralysis
  - Adequate sedation for procedures (sync, etc)

Quality Indicators

- Medication selection
  - Appropriate & timely abx
- Time intervals
  - Time to RSI
  - Time to OR or ICU
- ACLS/PALS/ATLS
  - Compliance with algorithms



FAQ: What Do We Need To Know?

- EM is EVERYTHING!
  - ID
  - Geriatrics
  - Pediatrics
  - Medicine
  - Psychiatry
  - Surgery
  - Jerry Springer show

FAQ: What resources are available if I'm just starting out

- ASHP Patient Care Impact Program: Introducing an Emergency Pharmacist into Your Institution
  http://www.ashp.org/Import/CONTINUINGEDUCATIONCE/LiveActivities/PatientCare.aspx
- Emergency Pharmacist Research Center
  http://www.emergencypharmacist.org/index.html
- Emergency Care Listserve
  http://list.ashp.org/read/?forum=emergency_care_group

Conclusions & Questions