Administrative Implementation of Emergency Medicine Pharmacy Services

Rita Shane, Pharm.D., FASHP
Director, Pharmacy Services
Cedars-Sinai Medical Center
Assistant Dean, Clinical Pharmacy
UCSF School of Pharmacy
Los Angeles, CA
Cedars-Sinai Medical Center

- 950 beds
- Tertiary care, non-profit, teaching institution
- Emergency Department
  - Level 1 trauma center
  - Fast Track (urgent care) area
  - 77,000 visits/year
  - 31% of pts are admitted
Pharmacy Department

- Decentralized services via 6 satellites
- 3 outpatient pharmacies
- 197 FTEs
- ED Staffing
  - Pharmacists-2 FTEs
    - Coverage: 11:00 am – 9:30 pm, 7 days/week
  - Technician 1 FTE
Creating Expectations

- IHI safety initiative in Emergency Department provided opportunity for pharmacist participation; primary care resident asked to participate
- Resident played instrumental role in collaborating with ED staff to focus on medication safety
Timing is Everything

- JCAHO requirement to provide one standard of care
- Decentralized pharmacist model existed throughout inpatient areas
- ED Co-Chairs went to MEC and requested addition of pharmacist position to provide consistency in patient care
- Approval obtained for 1.0 FTE in 2002
- Initial staffing: M-F day shift
Identifying the Right Candidate

• Initial approach: decision to recruit individual with ED residency training

• Ultimately, primary care resident recruited to fulfill the ED pharmacist role
  • Possessed shared vision and values
  • Experience in ED working on safety initiative and established positive working relationships with ED staff during residency rotation
  • Additional training in acute care provided

• Combination of primary care and acute care skills deemed necessary to meet the needs of ED patients
Evolution of Position

• Dimensions
  • Clinical
  • Distributive
  • Administrative
Clinical Priorities

- Ensuring consistency with inpatient clinical services
  - Formulary
  - Dosing Protocols
  - Target Drug Programs
- Acute responsibilities
  - Code Brains
  - Code Whites
  - Code Blues, focus on pediatrics
  - Code Trauma
Clinical Priorities

• Ongoing review of orders in ED CPOE system and intervention to prevent ADEs
• Drug information
• Inservices
Distributive Priorities

- Decentralized automation management
  - Optimizing use of decentralized automation
    - Evaluating drugs stocked vs pt care needs
  - Ensuring controlled medication accountability
  - Ensuring reconciliation of “John/Jane Does”
- Dispensing/preparation of IVs
Administrative Responsibilities

• Developing resource materials
  • Critical Care Medication Guide
  • Pediatric dosing guidelines
  • Patient education materials-review and revision to ensure consistency with inpatient discharge instructions

• Leadership role on ED Medication Safety Committee
  • Ensuring consistency with organizational medication safety initiatives
  • Review of ED reports: Notification System and Hotline
  • Keeping abreast of changes in JCAHO and NPSG’s
  • Review of external literature
Administrative Responsibilities

- Ensuring regulatory compliance
- Serving as a liaison between Pharmacy and ED
- Oversight of medication databases within ED CPOE System
- Key role in Disaster Preparedness
Pharmacist collaboration with medical and nursing staffs resulted in an increased demand for presence in the ED.

- Request for 2nd position to provide 7 day coverage, 10 hr/day
  - Implemented in 2004

Areas of Focus
- Medication safety
- Continuity of care for admitted patients
- Target drug programs
- Role of pharmacist in trauma care
- Participation in core measures and quality initiatives
Double Checking of High Alert Medications Prior to Administration

- Heparin:
  - 2003: 100%
  - 2004: 100%
  - 2005: 120%

- KCl:
  - 2003: 4%
  - 2004: 15%
  - 2005: 9%

- tPA:
  - 2003: 100%
  - 2004: 100%
  - 2005: 120%
## Preventing Prescribing Errors

<table>
<thead>
<tr>
<th>Problem Identified</th>
<th>Pharmacist Recommendation</th>
<th>Outcome Avoided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cefotaxime 1gm IVPB for empiric treatment of meningitis</td>
<td>Recommended 2gm IVPB</td>
<td>Avoided subtherapeutic dose</td>
</tr>
<tr>
<td>Heparin 6400 units IVP and 1400 units/hour ordered by ED resident for ACS</td>
<td>Recommended 5000 unit bolus and 1000 units/hr</td>
<td>Avoided potential bleeding complications</td>
</tr>
<tr>
<td>Hypertonic saline ordered based on PMD report of abnormal labs</td>
<td>Recommended waiting for ED to obtain BMP; results: Na=126;</td>
<td>Avoided potential hypernatremia</td>
</tr>
<tr>
<td></td>
<td>recommended DC of order.</td>
<td></td>
</tr>
<tr>
<td>Pt. with subarachnoid hemorrhage. Medication hx unknown; initial orders did not</td>
<td>Recommended lab order PT/PTT</td>
<td>Avoided potential delay in appropriate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>management of coags.</td>
</tr>
</tbody>
</table>
Potential Adverse Drug Events Prevented via ED Pharmacist Intervention

- Drug Selection: 43%
- Dosing Error: 25%
- Continuity: 12%
- Allergy: 8%
- * Drug Interactions: 8%
- ** Other: 2%
- ** Wrong Patient: 2%

June-October 2006, N=60
Rapid Reversal of Coumadin Coagulopathy in Traumatic Intracranial Hemorrhage

Objective: To determine whether early use of Factor IX Complex (FIXC) is a safe, faster alternative to current therapy for the rapid reversal of coumadin anticoagulation in patients with traumatic intracranial hemorrhage (TIH).

• Retrospective chart review; patients with TIH treated with FIXC between 11/02 and 1/06 \( N=28 \)

• Mean INR on admission: 5; after FIXC infusion, INR: 1.9 (\( p=0.008 \)); remained low for 24 hours

• Of the 11 patients who had repeat INR drawn within 30 minutes after FIXC infusion, mean time to correction was 13.5 minutes.

• No early thrombotic events or allergic reactions.

Presented at the American Association for the Surgery of Trauma in Sept. 06.
## CQI Smart Pump Utilization

<table>
<thead>
<tr>
<th></th>
<th>Continuous Infusion</th>
</tr>
</thead>
<tbody>
<tr>
<td># Infusions</td>
<td>59</td>
</tr>
<tr>
<td>Compliance with use of drug library</td>
<td>83% (49/59)</td>
</tr>
<tr>
<td>Reasons for not using library</td>
<td>3/10 cases drug not in library</td>
</tr>
</tbody>
</table>

- Data shared with nursing staff to reinforce use of the pump
- Request to add medications to the drug library
Improving Handoff Communication
ED to Floor

- Clinical data repository enhanced to enable pharmacist to pharmacist communication at the pt level.
  - Used by ED pharmacist to communicate clinical issues, e.g. dosing, interventions on restricted drugs for patient being admitted
- Reduces rework by inpatient pharmacists; positive feedback from inpatient staff
A Positive Side Effect

- Patient in cath lab experienced a stroke
- Nurse caring for pt had transferred to cath lab from ED
- Called ED pharmacist for tPA resulting in timely administration of medication
Ongoing Focus on Medication Safety

• Medication safety served as impetus for position
• Safety principles incorporated into every aspect of the position
  • ED CPOE System Improvements
  • tPA checklist
  • Automated dispensing system storage
  • ED intranet site for easy access to clinical guidelines
• Ongoing interventions to reduce prescribing errors
IOM Report on Emergency Care
Implications for Pharmacy

- Lack of Disaster Preparedness
- Shortage of On-Call Specialists especially for trauma (neurosurgery)
- Shortcomings in Pediatric Emergency Care
- Overcrowding and need to improve patient flow

IOM. Hospital-Based Emergency Care: At the Breaking Point. June 2006; www.nap.edu/catalog/11621.html, accessed 8/30/06
Strategies for Success

• Organizational culture of collaboration
• Selection of pharmacists with the “right stuff”
  • Ownership
  • Initiative
  • Team-Focused
  • Emotional intelligence
  • Ability to balance needs of ED and Pharmacy