Administrative Implementation of Emergency Medicine Pharmacy Services

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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
**Darwinian Approach to ED Services**

**↑ Collaboration ↑ Demand for Services**

- Pharmacist collaboration with medical and nursing staffs resulted in increased demand for presence in the ED.
- Request for 2\textsuperscript{nd} 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

KCl

tPA

- 2003
- 2004
- 2005
# 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; recommended DC of order.</td>
<td>Avoided potential hypernatremia</td>
</tr>
<tr>
<td>Pt. with subarachnoid hemorrhage. Medication hx unknown; initial orders did not include baseline coags</td>
<td>Recommended lab order PT/PTT</td>
<td>Avoided potential delay in appropriate management of coags</td>
</tr>
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Potential Adverse Drug Events Prevented via ED Pharmacist Intervention

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>
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<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