Clinical Pharmacy Services in the Emergency Department

Daniel P. Hays, Pharm.D., BCPS
Director, Specialty Residency in Emergency Medicine/Critical Care
Clinical Pharmacy Specialist – Emergency Medicine
University of Rochester Medical Center
Rochester, New York
www.emergencypharmacist.org

AHRQ Conference, Bethesda, MD; September 27, 2007
Acknowledgments

- **Funding:** AHRQ
  - Partnerships in Patient Safety Grant (1U18HS015818)
- Principal Investigator:
  - 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

Croskerry, et.al. Academic Emergency Medicine
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
<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>MG/KG/DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciprofloxacin</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DOSE</th>
<th>ROUTE</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>500mg</td>
<td>PO</td>
<td>BID</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INDICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIME</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1440</td>
<td>9/18/0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNATURE/TITLE</th>
<th>PAGER NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kern MD</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MEDICATION</th>
<th>MG/KG/DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maelox</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DOSE</th>
<th>ROUTE</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>30cc</td>
<td>IV</td>
<td>X (now)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INDICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TIME</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1440</td>
<td>9/18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SIGNATURE/TITLE</th>
<th>PAGER NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kern MD</td>
<td></td>
</tr>
</tbody>
</table>
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
References


References


References

References

References


- IOM report on Emergency Care 2006