The Emergency Pharmacist

a patient safety intervention in emergency medicine

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Objectives

- Describe our current project
  - Context and Justification
    - “Systems approach” to patient safety
    - Background to current study
  - Methods and measures
  - Preliminary results
  - Upcoming results
  - Upcoming toolkit items

  (Website: www.EmergencyPharmacist.org)

Patient Safety

"Most serious medical errors are committed by competent, caring people doing what other competent, caring people would do."

-Donald M. Berwick, MD

- "Name, Blame and Train" predominates
- <u>Systems Approach</u>
  - KEY: Human error cannot be eliminated
  - Predict and protect patients from effect

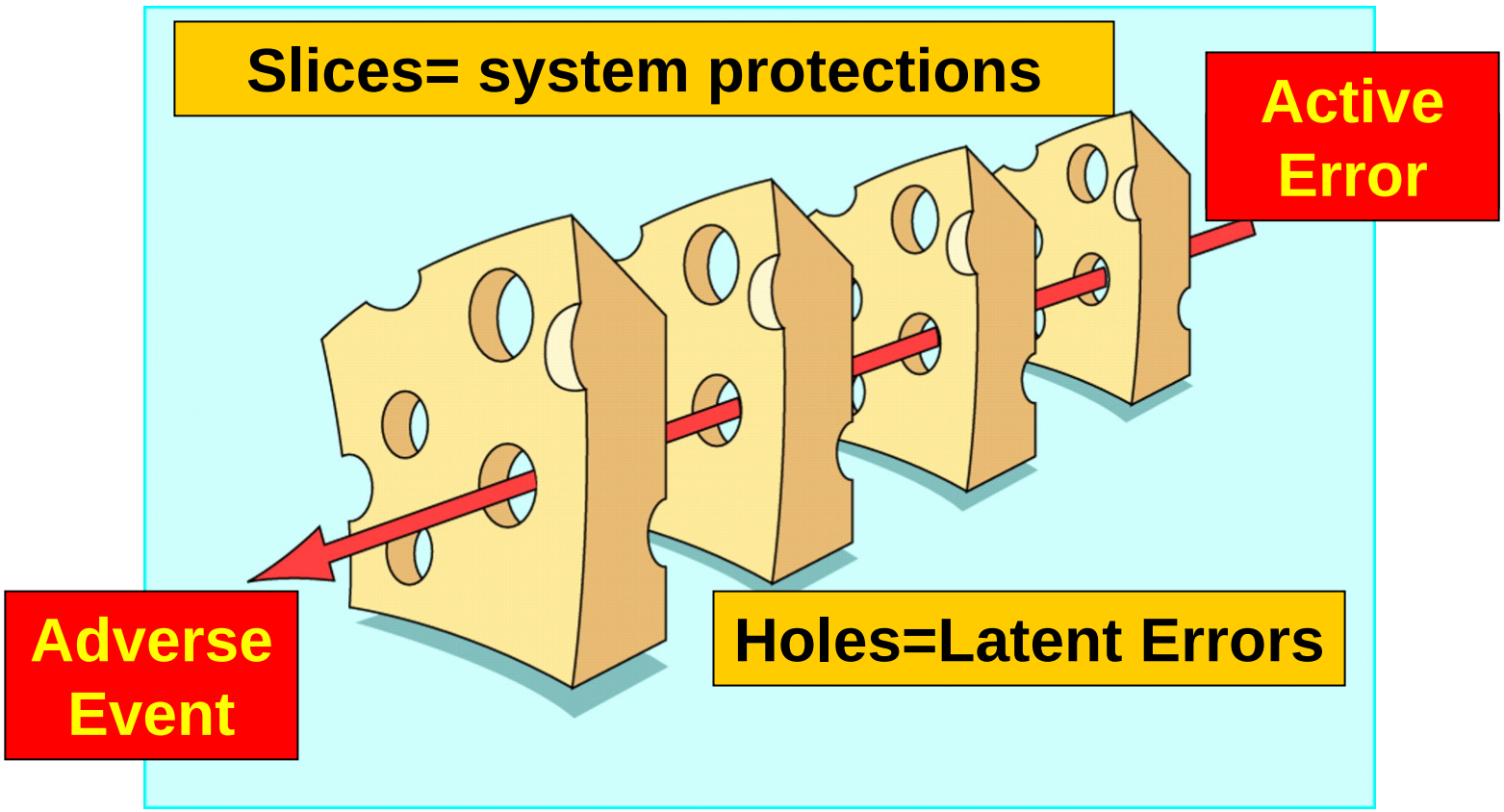
System Design

- "Keep the effect of the inevitable error from reaching the patient."

"Every system is perfectly designed to achieve exactly the results it gets"

--Donald Berwick, MD

Swiss Cheese Model (Reason)

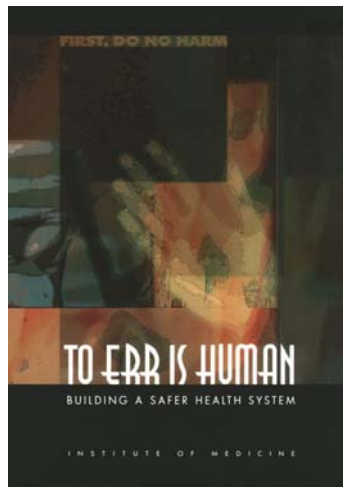


Modified from Reason, 1990

Systems Approach

- We must assume that errors will occur
  - Even the best will make errors in judgment or action
  - System design should absorb error via
    - Event reporting and analysis
    - Automation
    - Redundancy
    - Buffers (Ex: CRM)
    - Multiple slices of Swiss cheese
  - The EPh serves many of these functions

Medication Safety in EM



- Medication events are a significant cause of adverse events in the ED

  Hafner, Belknap, et al. Ann Emerg Med 2002; 39(3):

- Higher prevalence of preventable adverse events in the ED

  Leape, Brennan, et al. NEJM 1991; 324 (6).

  Kohn, Corrigan, Donaldson (eds), IOM, 2000.

- More common among older adults

  Chutka DS, Takahashi PY, Hoel RW. Mayo Clin Proc. 2004;79:122-39

Medication Safety in EM

- ED: Less system protections
- Why is it different in the ED?
  - No pharmacy check as in rest of hospital
  - Higher prevalence of IV Medication, verbal orders
  - Urgent, high stress, multi-tasking, interruptions
  - Unfamiliar patients, limited access to medical record
  - Less opportunity for follow-up
  - High Volume
    - Inpatient provider→ maybe 5 discharges/day
    - Emergency Medicine Provider→maybe 25 discharges/shift

Background

- Pharmacists common in inpatient setting
  - 99% of Pharm recommendations accepted by physicians in ICU
  - 66% decrease in ADEs in ICU

    Leape LL, Cullen DJ, Clapp MD, et al. JAMA 1999;282(3):267-70
- Emergency Departments:
  - Only 1-3% of EDs use pharmacists

    --Thomasset K, Faris R. Am J Health-Syst Pharm. 2003;60.

    --Delgado G, ASHP Midyear 2005
  - No data on effect
- Why ??

Background

- URMC Emergency Department
  - EPh Program Since 2000
  - Accredited CC/EPh residency
  - Anecdotally we found
    - Medication adverse events reduced
    - Staff consult the EPh often
    - Staff seem to value EPh input

Fairbanks RJ, Hays DP, Webster DF, Spillane LL, Clinical Pharmacy Service in an Emergency Department, American Journal of Health-System Pharmacy, 2004; 61(9): 934-937.

Preliminary Data

- Quality measures during trauma
  - 204 trauma alert charts reviewed
  - 51 (25%) had EPh Present at trauma
  - Similar group (demographics, mechanism)
  - Overall: meds 10 minutes sooner
  - Faster time to analgesia, sedation, RSI, and antibiotics
  - 9 ADEs when EPh not present, 1 when present
- 2005 ASHP Best Practices Award

Kelly SJ, Hays D, O'Brien T Gestring M, Fairbanks RJ, and Metz M. 2005 ASHP Best Practices Award: "Pharmacists Enhancing Patient Safety During Trauma Resuscitations."

Hays D, Kelly-Pisciotti S, O'Brien T, Fairbanks RJ, et al. American Association for the Surgery of Trauma 2006 Annual Meeting, September 28-30, 2006; New Orleans, LA.

Overview of Current Study

Goal 1– optimize the role

Goal 2– assess staff perceptions

Goal 3– evaluate the impact

Goal 4– disseminate “toolkit” items

Goal 1: Optimize Role

- Objective
  - Optimize Role *for patient safety*
- Methods
  - Qualitative: interviews (purposive sampling)
    - Emergency physicians, residents, nurses, inpatient providers, pharmacists, patients
    - How can we maximize the patient safety role...
    - Field notes transcribed, coded, sorted
    - Analysis for emerging themes
  - Redundancy → 43 Interviews

Goal 1: Results

- High visibility / easy access
  - On duty/off duty signs
  - Portable phone
  - Frequent walk-rounds
- Patient centered roles only
  - Minimal dispensing, no stocking
- Focus on ED patients
  - Admitted boarders → inpatient pharmacy

Goal 1: Results

- Maintain surveillance of provider orders
  - mandatory review of pediatric orders
    - ex) patients <1 year or <10kg
- Respond to critically ill (traumas, codes)
- Focus coverage on peak volume periods
- Minimize administrative responsibility
  - Committees, etc

Goal 2: Staff Perceptions

- Survey instrument: to 91 staff
  - 84% response rate (~½ RN)
  - Staff perceptions
    - 99%: EPh improves quality of care in ED
    - 96%: EPh is integral part team.
    - 93%: consulted EPh “at least a few times” in past week
  - Conclusion: “Turf” not a barrier

Fairbanks RJ, Hildebrand JM, Kolstee KE, Schneider SM, Shah MN. Medical and nursing staff highly value and often utilize clinical pharmacists in the emergency department. (under review).

Goal 3: Evaluate Impact

- Hypothesis: EPh improves medication safety and quality of care
- Study Design:
  - Prospective enrollment (goal 11,000)
  - Random selection for chart review
    - 85% of all critically ill
    - 20% of all pediatric (<19yo)
    - 25% of all geriatric (>64yo)
  - 2 groups: EPh absent vs. EPh Present

Goal 3: Evaluate Impact

- Outcome Measures
  - ADE, PADE
  - Quality measures: list developed
    - Specific to Emergency Medicine
    - Literature review & expert consensus
- Methods
  - HMPS methods used (David Bates, Diane Seger)
    - Data abstracted- nurse reviewers
    - Suspicion for ADE/PADE identified by RNs
    - Confirmed and classified by MDs

Goal 3: Evaluate Impact

- Quality Indicators
  - CMS
  - JCAHO Core Measures
  - AHRQ Patient Safety Indicators
  - ACOVE Quality Indicators for elderly
  - RAND Quality Indicators
  - American Heart Association (ACLS, PALS)
  - National Quality Forum
  - American Hospital Association
  - Leapfrog Group
  - Other disease specific quality indicators

Quality Indicators

- AMI
  - ASA on arrival
  - BBL on arrival
  - Thrombolytics within 30 minutes
  - Cath within 60 minutes
- CAP
  - Oxygen saturation assessed
  - Blood Cx prior to ABX (if drawn)
  - Antibiotic within four hours of arrival

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
  - Compliance with algorithms

Quality Indicators

- Older Adult Measures--Beers and ACOVE
  - Avoid drugs with strong anticholinergic properties whenever possible (if alternatives exist)
  - Use PPI for patient with GI Bleed or ulcer
  - Avoid beta-blocker in patients with asthma
  - Use acetaminophen as first line for osteoarthritis (vs NSAIDS)

Goal 3: Evaluate Impact

- Limitation
  - One Emergency Department
  - Contamination between 2 groups
    - Staff memory/education
    - Patients who's stay extends between 2 groups

Goal 3: Evaluate Impact

- Status to date
  - 9500 charts screened/abstracted
    - 28% older adults (>64yo)
  - 426 (5%) charts to MD Committee
    - 41% older adults
  - ADE/PADE reviews underway
  - Full analysis late winter

Goal 3: Evaluate Impact

- One preliminary look: Pain Management
  - 8118 cases (48% peds, 28% geriatric, 34% critical)
  - 45% by EMS, 20% with pain >5/10
    - 3.3% received EMS pain med
    - 66% received pain med in ED
  - 50% non-EMS patients with pain >5/10 received pain medication (95%CI: 47-52%).
  - Median time to first pain med = 50 min

Fairbanks RJ, Kolstee KE, Martin H, Dewar KH, Rueckmann EA, Shah, MN. Prehospital Pain Management is not adequate (Abstract). Prehospital Emergency Care 2007; 11(1).

Summary

- Systems approach
- Optimized role
- Evidence to minimize barriers
- What's next:
  - Residency survey
  - Disseminate results
  - Toolkit items on website
  - ASHP Summer Conference- seminar

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New Resources coming soon on website:

- ***Our study results as they become available***
- ***Other data, references, evidence base***
- ***Resources to aid stakeholders, such as:***
  - ***Justification for program (powerpoint and narrative)***
  - ***Different presentations for each audience, such as pharmacy leadership, ED leadership, hospital leadership***

www.EmergencyPharmacist.org