A Systematic Approach to Emergency Care Research

Irene Fraser, Ph.D., Director
Pam Owens, Ph.D.
Center for Delivery, Org. and Markets

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You Can’t Solve a Systems Problem with Fragmented Research

**Need:**
- Strong, linked **data** on robust measures
- Evidence on how to improve emergency care systems
- Collected and implemented systematically
Over 91 databases

Two examples highlighted in IOM reports:

- CDC/NCHS
  - National Hospital Ambulatory Medical Care Survey (NHAMCS): national ED data

- AHRQ
  - Healthcare Cost and Utilization Project (HCUP): local ED data

But need:

- Better linkage, coordination across data systems
- Enhanced data capacity
- Quality measures
The Power of Administrative Data: Healthcare Cost & Utilization Project (HCUP)

37 State Partners
90% of All-Payer Hospital Discharges in U.S.
Census of Hospital Care—NOT a Sample
Inpatient, ambulatory surgery, ED databases
Welcome to H·CUPnet

H·CUPnet is a free, on-line query system based on data from the Healthcare Cost and Utilization Project (HCUP). It provides access to health statistics and information on hospital stays at the national, regional, and State level.

Begin your query here -

- National and Regional Statistics from the NIS
  Create your own statistics for national and regional estimates on hospital use for all patients from the HCUP Nationwide Inpatient Sample (NIS). Overview of the Nationwide Inpatient Sample (NIS)

- National and Regional Statistics on Children Only from the KID
  Create your own statistics for national estimates on use of hospitals by children (age 0-17 years) from the HCUP Kids’ Inpatient Database (KID). Overview of the Kids’ Inpatient Database (KID)

- State Statistics from the SID
  Create your own statistics on stays in hospitals for participating States from the HCUP State Inpatient Databases (SID). Overview of the State Inpatient Databases (SID)

- Quick Statistics from the NIS, KID, or SID
  Ready-to-use tables on commonly requested information from the HCUP Nationwide Inpatient Sample (NIS), the HCUP Kids’ Inpatient Database (KID), or the HCUP State Inpatient Databases (SID).

- AHRQ Quality Indicators
Inpatient Data on HCUPnet Answers Many ED Questions

- What percentage of hospitalizations begin in the ED, by age, gender, expected payer?
- What percentage of hospitalizations for a particular condition begin in the ED?
- What percentage of hospitalizations begin in the ED, by various hospital characteristics?
- What is the trend in admissions from the ED?
- Will there be sufficient cases to do my analysis?
- How do my estimates compare with HCUPnet (validation)?
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Reasons for Being Admitted to the Hospital through the Emergency Department, 2003

Anne Edelhauser, PhD and Pamela Owens, PhD

Introduction

In 2003, over 16 million patients entered the hospital through the emergency department—roughly 44 percent of all hospital stays. Hospital stays excluding pregnancy and childbirth, policymakers and health care professionals are concerned about potential overuse and inappropriate use of emergency rooms (ERs). There is also concern that emergency departments care for patients with chronic conditions who may not be receiving adequate outpatient follow-up to control their conditions.

This statistical brief presents data from the Healthcare Cost and Utilization Project (HCUP) on the most common reasons in 2003 for all hospitalizations that began in the ED.

Findings

Major reasons for admission to the hospital through the ED

Figure 1 shows the reasons for admission to the hospital through the emergency department, organized by body system, excluding pregnancy and childbirth. Circulatory disorders were the most frequent reason for admission to the hospital through the ED, accounting for 26.3 percent of all admissions through the ED. Respiratory and digestive disorders were the next most common category of conditions, respectively comprising 15.1 percent and 14.1 percent of all admissions through the ED. Injuries constituted 11.4 percent of all hospital admissions through the ED. Three other body systems each accounted for 5-6 percent of all admissions through the ED: mental health and substance abuse disorders (MHSA), endocrine disorders, and genitourinary disorders.

Most frequent specific conditions

- Circulatory disorders (diseases of the heart and blood vessels) were the most frequent reason for admission to the hospital through the ED, accounting for 26.3 percent of all such admissions; injuries accounted for 11.4 percent of all ED admissions.
- The top 20 specific conditions accounted for more than half of all hospital admissions through the ED, with pneumonia as the single most common specific condition at nearly one million (5.7 percent) of all such admissions.
- Complications of procedures, devices, implants, and grafts ranked as the ninth most common reason for admission through the ED and included postoperative infections, malfunction of orthopedic devices, and infection of arteriovenous fistulas used for dialysis.
- The top 20 specific conditions admitted through the ED included several chronic conditions: chronic obstructive lung disease, asthma, diabetes, and mood disorders. Also included were fluid and electrolyte disorders; urinary, skin, and blood infections; gall bladder disease; gastrointestinal bleeding, and appendicitis; and hip fracture.
- While up to 82 percent of the most frequent acute conditions were admitted through the ED, a large percentage of chronic conditions were also admitted through the ED; for example, 72 percent of cases with congestive heart failure, chronic obstructive lung disease, and asthma.
Half of Uninsured (vs. 1/4 of Privately Insured) Admitted through the ED

Source: HCUP data
AHRQ Quality Indicators
Used with Inpatient Data

- Developed through contract with UCSF-Stanford Evidence-based Practice Center
- Use existing hospital discharge data, based on readily available data elements
- Four modules: Inpatient, Patient Safety, Pediatric, Prevention Quality Measures
- Incorporate severity adjustment methods (APR-DRGs, comorbidity groupings) in IQIs
- Original goal: Use for national tracking, quality improvement
- Growing use for reporting (in 9 states) and P4P
New Emphasis: 22 HCUP Partners
Provide 2005 Emergency Department Data

Key:
- Participating
- Non-participating

Note: Potential participants include CA, NC, NY, RI.
Future Vision for ED and Other HCUP Data

- Expand **ED and other outpatient reach**
  - ED data on HCUPnet
  - National ED dataset
  - ED Quality Indicators

- Use HIT to improve **timeliness**

- Add clinical detail for **accuracy, credibility**
  - condition present on admission
  - lab values

- Pilot **cross-site data, new data links, collaborations**

- New **tools** for expanded data

- Continue privacy & **data security**
Information Technology Can Help
Link Data, Activities for Emergency Care and Preparedness

Front-Line Clinical Providers
- Primary care clinicians
- Managed care organizations
- Emergency departments
- Hospitals

IT

Public Health Infrastructure
- Public health departments
- State laboratories
- Emergency preparedness
Example: Emergency Department Crowding: Causes and Consequences (PI: Asplin, B.)

Project Goals:

- Examine three types of factors that contribute to Emergency Room crowding: input, throughput, and output factors
- Determine if an Advanced Access (AA) appointment system is associated with reduced Emergency Department utilization rates
- Develop feasible and reproducible measures of ED crowding
Project Example: Developing Data to Monitor and Reduce Emergency Department Overcrowding (PI: Asplin, B.)

- Resulted in a diverse national panel of experts proposed measurement sets to monitor ED crowding.

Multiple emergency preparedness projects to develop new models and tools
Need Systematic Collection and Implementation of Evidence

Example: ACTION Network

- 15 large provider-based consortia
- Do applied, practical, rapid cycle research and implementation
- Include most hospitals and physician practices in nation
- Huge volume and diversity in settings, providers, payors, populations, topics
- Have heavy buy-in from operational leadership
- Mechanism for cross-Agency collaboration
Example: AHRQ Preparedness Tools Deployed for Katrina Response

- Critical Infrastructure Data System used to retrieve, analyze and report data from the Katrina-Rita affected areas to help guide resources for response and recovery

- “Real Time” National Standardized Hospital Bed Availability Reporting System provided the data structure backbone

- Atlas of Healthcare Resources (soon to be released!) allowed for the mapping and reporting of affected health care facilities in the affected areas

- Use of Former (“Shuttered”) Hospitals to Expand Surge Capacity
Focusing on the unique needs of children, provides an overview of the role of national, regional, and local emergency response systems before, during, and after disasters and terrorism events.

Highlights the pediatrician’s role in collaborating with local emergency responders, hospitals, schools, and day care facilities.

AHRQ partnership with the American Academy of Pediatrics.
Research on efforts to improve health care quality in under-resourced settings that predominantly serve low-income persons. The focus of the research will be on quality improvement interventions … that may also target the clinical units of work that actually give the care that patients experience (e.g., emergency departments, etc.)…

Ambulatory Safety and Quality Program: Enabling Quality Measurement through Health IT (R18)

Ambulatory Care Patient Safety Proactive Risk Assessment (P20)

Ambulatory Safety and Quality Program: Improving Quality through Clinician Use of Health IT (R18)

Ambulatory Safety and Quality: Enabling Patient-Centered Care through Health IT (R18)
For Further Information

Irene.Fraser@ahrq.hhs.gov
  u 301-427-1400
Pamela.Owens@ahrq.hhs.gov
  u 301-427-1438
HCUP website
  http://www.hcup-us.ahrq.gov
HCUPnet
  http://hcup.ahrq.gov
AHRQ Quality Indicators website
  http://www.qualityindicators.ahrq.gov
AHRQ Home Page
  http://www.AHRQ.gov