

**2008 UIC Emergency Medicine Residency Research Course**  
**Database Use: Pain Example**  
**Edward P. Sloan, MD, MPH, FACEP**

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**Conducting Successful EM  
Resident Research:  
*Working with Databases***

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**2008 UIC Research Course**

*UIC EM Residency Program  
Chicago, IL  
September 25, 2008*


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***Using CDC Databases:  
An Example of NHAMCS  
Data in a Pain Lecture***

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**Optimal Pain Management  
for ED Patients:  
*Issues in 2004***

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**Objectives**

- Present clinical cases
- Examine current ED practice
- Discuss ACEP policy statement
- Ask clinically relevant questions
  
- Improve patient care

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## Database Use: Pain Example

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#### Key Learning Points

- ED patient pain ubiquitous
- Predictable medication use
- ACEP Policy Statement imminent
- Many questions remain
- Efficient patient pain Rx is critical
- ED patient pain Rx can be optimized

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#### ED Patients: Clinical Cases

- Specific disease states
- Pediatric and geriatric pain
- Chronic pain syndromes
- Potential analgesic abuse

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#### Specific Painful Disease States

- Renal colic
- Pain crisis in sickle cell disease
- Headache
- Fractures and multiple trauma
- Abdominal pain

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#### Pediatric & Geriatric Pain

- A 4 yo with an ankle fracture
- A 10 yo with sickle cell pain crisis
- A 13 yo with abdominal pain
  
- A 78 yo with abdominal pain
- An 87 yo with a hip fracture
- A 67 yo with headache and vomiting

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#### Chronic Pain Syndromes

- Low back pain
- Radiculopathies, neuropathies
- Fibromyalgia, arthritis
- Cancer pain
- Migraine headache

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#### Analgesic Abuse Patients

- Multiple back surgeries
- Recurrent shoulder dislocations
- Renal colic pain
  
- MD out of town
- Patient from out of town
- Allergic to multiple medications
- Lost prescriptions

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#### Current ED Practice

- What pain severity?
- What pain med use?
- What disposition?
- NHAMCS database
- UIC Retrospective data, 6 hospitals
- UIC, Resurrection, Emory, Wayne State

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#### Abdominal Pain: NHAMCS

- NHAMCS 1999-2000, 8% of ED visits
- 62% Female, 75% Caucasian, 37 ± 24 yo
- 58% Mod-severe pain
- 37% Receive a pain Rx
- Promethazine, meperidine, acetaminophen
- Moderate-severe pain
  - 53% greater pain Rx use (49 v 32%)
  - 89% greater narcotic use (34 v 18%)
- Parenteral narcotic use: 2.1x admits (40 v 19%)

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#### Abdominal Pain: ED Data

- 1999-2002: 330 pts, cholecystitis, obstruction
- 60% Female, 60 yo; 60% mod-severe pain
- 47% Receive a pain Rx
- Morphine, meperidine
- Promethazine, perchlorperazine
- Moderate-severe pain
  - 2.1x greater pain Rx use (60 v 28%)
  - 2.6x greater narcotic use (51 v 20%)
- Cholecystitis: 2.6x narcotic use (48 v 32%)

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#### Fracture Pain: NHAMCS

- NHAMCS 1999-2000, 4% of ED visits
- 54% Male, 74% Caucasian, 39 ± 26 yo
- 34% Mod-severe pain; 64% Receive a pain Rx
- Ibuprofen, hydrocodone, acetaminophen
- Meperidine, codeine
- Moderate-severe pain
  - 15% greater pain Rx use (70 v 61%)
  - 1.9x greater parenteral use (33 v 17%)
- Older, more pain, parenteral narcotic: Admit

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#### Fracture Pain: ED Data

- 2000-2002: 381 pts, wrist, ankle fractures
- 59% Female, 49 yo
- 63% Mod-severe pain
- 70% Receive a pain Rx; 64% Narcotics on D/C
- Ibuprofen, hydrocodone, morphine, codeine
- Moderate-severe pain
  - 35% greater pain Rx use (77 v 57%)
  - 41% greater narcotic use (31 v 22%)
- Over 65: 15% less pain Rx use (61 v 72%)

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#### Renal Colic Pain: NHAMCS

- NHAMCS 1999-2000, 1% of ED visits
- 65% Male, 77% Caucasian, 42 ± 15 yo
- 50% Mod-severe pain; 85% Receive a pain Rx
- Ketorolac, hydrocodone, promethazine
- Meperidine, morphine
- Moderate-severe pain
  - 18% greater pain Rx use (91 v 77%)
- Narcotic use
  - 2.2x greater admit with parenteral narcotic (22 v 10%)
  - 3.8x greater anti-emetic use (45 v 12%)

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**Renal Colic Pain: ED Data**

- 2001-2002: 227 pts; Renal colic, stones
- 63% Male, 44 yo, 77% D/C rate
- 86% Mod-severe pain
- 86% Receive a pain Rx; 73% Narcotics on D/C
- Ketorolac, morphine, promethazine
- Hydromorphone, meperidine
- Moderate-severe pain
  - 41% greater pain Rx use (86 v 63%)
  - 2.7x greater narcotic use (59 v 22%)
- Over 65: 23% less pain Rx use (67 v 87%)

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**Migraine Pain: ED Data**

- 2001-2002: 279 pts; Migraine headache
- 82% Male, 35 yo, 98% D/C rate
- 82% Mod-severe pain
- 72% Receive a pain Rx
- Promethazine, ketorolac, perchlorperazine
- Diphenhydramine, meperidine, hydromorphone
- Moderate-severe pain
  - 53% greater narcotic use (52 v 34%)
  - 37% greater parenteral use (85 v 62%)
- Discharge: narcotics, NSAIDs, anti-emetics

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**ACEP Policy Statement**

- ACEP Clinical Policy Committee
- ED Patient pain management
- Approved March 17, 2004
- Preamble
- Five statements

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**ACEP Policy Preamble**

- The majority of emergency department (ED) patients require treatment for painful medical conditions or injuries. The American College of Emergency Physicians recognizes the importance of effectively managing ED patients who are experiencing pain and supports the following principles.

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**ACEP Policy Statement**

- ED patients should receive expeditious pain management, avoiding delays such as those related to diagnostic testing or consultation.

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**ACEP Policy Statement**

- Hospitals should develop unique strategies that will optimize ED patient pain management using both narcotic and non-narcotic medications.

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**ACEP Policy Statement**

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- ED policies and procedures should support the safe utilization and prescription writing of pain medications in the ED.

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**ACEP Policy Statement**

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- Effective physician and patient educational strategies should be developed regarding pain management, including the use of pain therapy adjuncts and how to minimize pain after disposition from the ED.

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**ACEP Policy Statement**

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- Ongoing research in the area of ED patient pain management should be conducted.

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**ACEP Clinical Policy**

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- Next step: ACEP Clinical Policy
- Clinically relevant questions
- Clinically useful answers
- More consistent clinical practice
- Improved patient care
- Enhanced patient outcome

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**Clinical Questions**

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- Epidemiology
- ED pain therapeutics
- Clinical practice
- Clinical policies
- Systems for enhanced patient care
- Research
- Advocacy

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**Epidemiology**

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- Is ED pain Rx consistent, uniform?
- Are particular pt subsets at risk?
- Does variability alter outcome?
- What further data is needed?

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**ED Pain Therapeutics**

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- What ED therapies are available?
- What ED therapies are optimal?
- What ED complications occur?
  
- Is ED therapy disease dependent?
- Is ED therapy disposition dependent?

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**Clinical Practice**

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- How is ED pt pain optimally measured?
- How can documentation be enhanced?
- How can delivery be enhanced?
- How can reassessment be increased?
- How does Rx relate to satisfaction?

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**Clinical Policies**

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- What policies exist?
- Who developed these policies
- What disease states do they cover?
- Are they relevant to ED practice?
- Do ED physicians follow them?
- Does it matter?

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**ED Systems**

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- Do systems exist that enhance:
  - Evaluation
  - Treatment
  - Documentation
  - Satisfaction
  - Outcome?

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**Research**

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- What research can and should be done to answer the many clinical questions?
  
- What opportunities exist for emergency physician pain research participation?
  
- What funding opportunities exist?

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**Advocacy**

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- What groups are actively promoting enhanced ED patient pain Rx? How?
  
- What opportunities exist for emergency physician advocacy participation?

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#### Clinical Case Outcomes

- Disease = dis-ease
- Pain causes dis-ease
  
- There are two problems:
  - The disease causing the dis-ease
  - The dis-ease

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#### Critical Patient Management

- Problem solving
- Treat the disease
- Treat the dis-ease
- Be explicit as you do both
  
- Enhance outcome
- Enhance satisfaction

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#### Optimizing ED Patient Pain Rx

- Develop systems that:
  - Recognize pain
  - Prioritize pain relief
  - Minimize delays
  - Minimize complications
  - Maximize documentation
  - Reduce variability

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#### Conclusions

- ED patient pain exists 24/7
- Many medications in use
- ACEP Statement provides focus
- Many important questions remain
- Efficient patient pain Rx is possible
- ED patient pain Rx can be optimized through systematic approaches

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#### Recommendations

- Be aggressive in treating ED pt pain
- Read the ACEP Policy Statement
- Know use of ED pain therapeutics
- Develop systems in your own ED
- Participate in research & advocacy
  
- Learn, improve ED patient care

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#### *Questions?*

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ferne\_2008\_research\_lecture\_sloan\_pain\_problem\_092508\_final

