Why Use ESI Version 4: Advantages for Emergency Department Leadership
Triage is Key!

- Identify those patients that need immediate care and those that can safely wait to be seen!
- Requires an experienced emergency department nurse who is competent to triage
- The triage decision
  - Has a major impact on patient outcomes, safety
  - Must be correct
  - Under or over triage has major implications
Are there other purposes of triage?

• A good triage system provides an additional data source used by hospital administrators to describe the acuity of your patient mix

• Can be used to justify staffing changes and identify resource needs
Are there other purposes of triage?

- Provides an important data element useful in describing acuity of your ED, beyond volume!
- Allows for benchmarking your ED
Who else uses triage data?

- State and Local Public Health Departments
- Government policy makers
- Describes trends in emergency department care, acuity and volume
- Surveillance, bioterrorism, infectious disease monitoring
- Centers for Disease Control
Conducted by the DHHS – CDC
Samples EDs throughout the US
Collects data describing trends in ED visits
CDC - National Ambulatory Medical Care Survey (NHAMCS)

- Chief complaint, triage category, LOS, diagnostics, treatments provided and diagnosis and disposition data are collected
- Traditionally used a 4-level triage system
CDC - NHAMCS - 2002

- Reported a 17% decrease in the number of emergent patients seen in US emergency departments from 1997-2000
- Report was based on a four level categorization system
- 25% missing data

ACEP and ENA Five-Level Triage Task Force

- Triage resolutions
- 2003 Joint Five Level Triage Task Force
  - Conduct a literature review comparing all 5 level systems
  - Recommend National implementation strategies to both Boards of Directors
“The American College of Emergency Physicians and the Emergency Nurses Association believe that quality of patient care would benefit from implementing a standardized ED triage scale and acuity categorization process. Based on expert consensus of currently available evidence, ACEP & ENA support the adoption of a reliable, valid five-level system.”
Why five-level triage?

• Can you manage your waiting room with three triage levels?
• Can you easily describe the acuity of your patients in the waiting room AND in the treatment area with three choices?
• Can you differentiate more than “really sick”, “sick” or “not sick”? 
CRISIS IN THE ER

Turnaways and huge delays are a surefire recipe for disaster. What you can do
Why are we so busy and overcrowded?

- In-patient beds are full due to hospital closures and down-sizing
- Nursing staff shortage limits open beds
- Aging population, the largest group that uses ED services
- Limited access to health care for many populations
Triage Systems in Use

DEEDS, 2001

- 3 Level: 69%
- 4 Level: 12%
- 5 Level: 3%
- No triage: 12%
- NR: 4%
Triage scores 2001-2002

110 million ED visits (increase of 23% from 1992)
So What?
What are we overcrowded with?

• Low acuity? High acuity?
• A valid & reliable triage system is a way to help describe the acuity of our patients
Triage Issues

• Need a triage acuity rating system that is both valid and reliable
  – Not one that is volume, nurse, physician or hospital dependant
  – The current three level system provides no reliable information

• With no reliable information we have no data
  • Do individual emergency departments know their case mix?
  • How do they compare to other EDs locally, nationally?
Evaluating Triage Acuity Rating Systems

- **Reliability**
  - *consistency* or agreement among those using a rating system
  - kappa statistic
    - 0 no agreement
    - 1 perfect agreement
  - **Inter-rater Reliability**
    - *Will different triage nurses rate the same patient with the same acuity level?*
  - **Intra-rater Reliability**
    - *Over time, will the same nurse rate the same patient with the same acuity level?*
Evaluating Triage Acuity Rating Systems

• Validity
  • accuracy of the rating system
  • how well does the system measure what it is intended to measure?
  • admission rate, length of stay, resource consumption
Issues: Three Level Triage

• Poor reliability and validity has been demonstrated in many studies
• Wuerz 1998: 2 phase written cases with RN’s
  – Phase I - Inter-rater reliability Kappa = .347
  – Phase II – Kendall Thau by case = .145 to .554 – Poor (only 24% of RN’s rates all cases the same)

If no one agrees:

• How do you describe what is going on right now in your ED with a three level system?
• Is everyone in your waiting room stable? Safe to wait?
• How do you describe your overall day to day, hour to hour acuity?
• How do you predict anything??? Staffing, Urgent Care volumes versus main room....
2005 NHAMCS Change to 5-Level Triage Data Collection
(Time to Evaluation)

• 1 – Immediate - Resuscitation
• 2 - < 15 minutes - Emergent
• 3 – 15-60 minutes - Urgent
• 4- 1-2 hours – Semi-urgent
• 5 – 2-24 hours – Non-urgent
• 6 – Unknown, no triage
Five Level Systems

- Australasian Triage Scale (NTS)
- Canadian Triage Acuity Scale (CTAS)
- Manchester Triage Scale
- Emergency Severity Index (ESI)
Emergency Severity Index (ESI)

- Developed by R. Wuerz & D. Eitel
- Categorizes patients by
  - acuity
  - expected resource needs
- Research team consisted of ED physicians and nurses at 7 different research sites
- Excellent reliability and validity
- Implementation handbook available through AHRQ
- Version 4 to be published in early 2005
ESI Reliability Studies

- Prospective live triages, multi-center\(^1\)
  - Weighted kappa = .68-.87
- Written scenarios, multi-center\(^1\)
  - Weighted kappa = .70-.80
- Retrospective review of 402 ED patients\(^2\)
  - Weighted kappa = 0.89

Validity - Hospitalization

ED Benchmarking
Case Mix by Site

![Graph showing ESI Triage Level and percentage of patients by site (BW, FH, 17th, MH, YH, UNC, LVCC)].

- BW
- FH
- 17th
- MH
- YH
- UNC
- LVCC
Summary

- Triage is a critical role
- Safety implications
- Important data element to hospitals, states and federal agencies
- Clinical, management, and research implications