# Why Use ESI Version 4: Advantages for Emergency Department Leadership

**Emergency Severity Index**

# 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

# CDC - National Ambulatory Medical Care Survey (NHAMCS)

- 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

McCaig, L & Ly, N (2002) NHAMCS: 2000 Emergency Department Summary. Advance Data from Vital & Health statistics, 326, 1-31

# ACEP and ENA Five-Level Triage Task Force

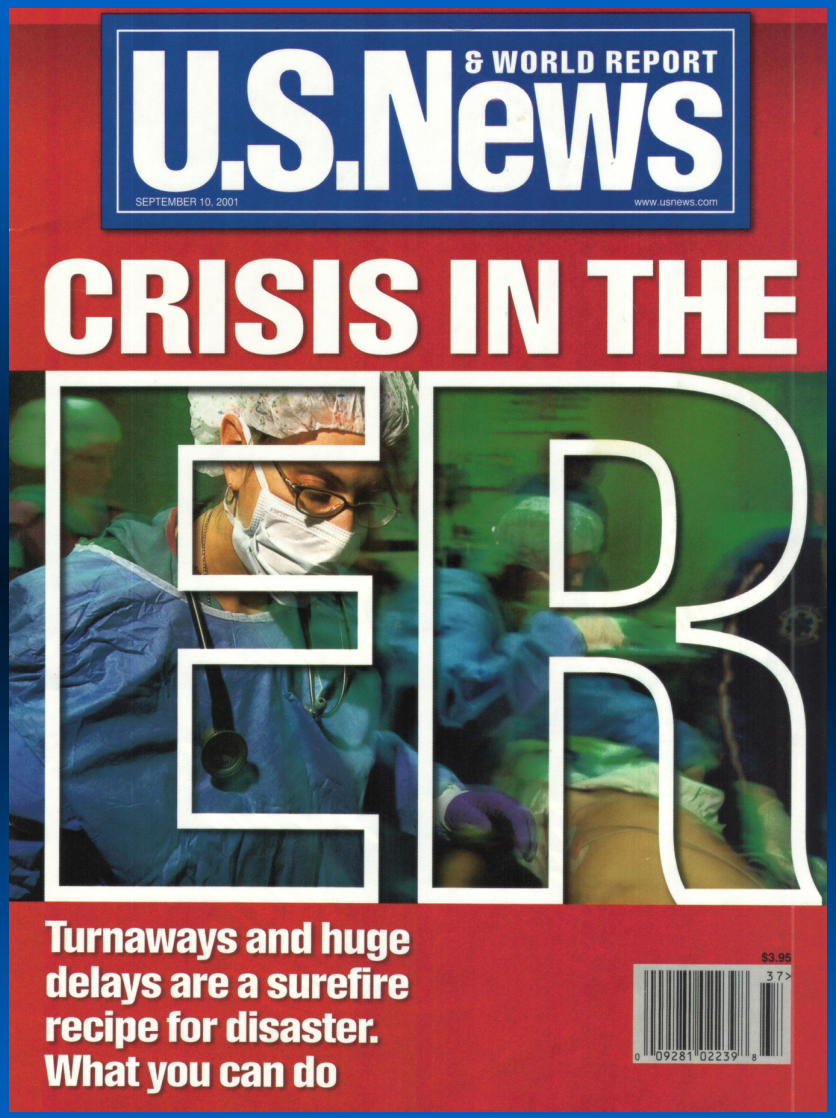
- Triage resolutions
- 2003 Joint Five Level Triage Task Force
  - Conduct a literature review comparing all 5 level systems
  - Recommend National implementation strategies to both Boards of Directors

# ACEP/ENA Policy - 2003

**"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"?


U.S.News & WORLD REPORT
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www.usnews.com
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Turnaways and huge delays are a surefire recipe for disaster. What you can do
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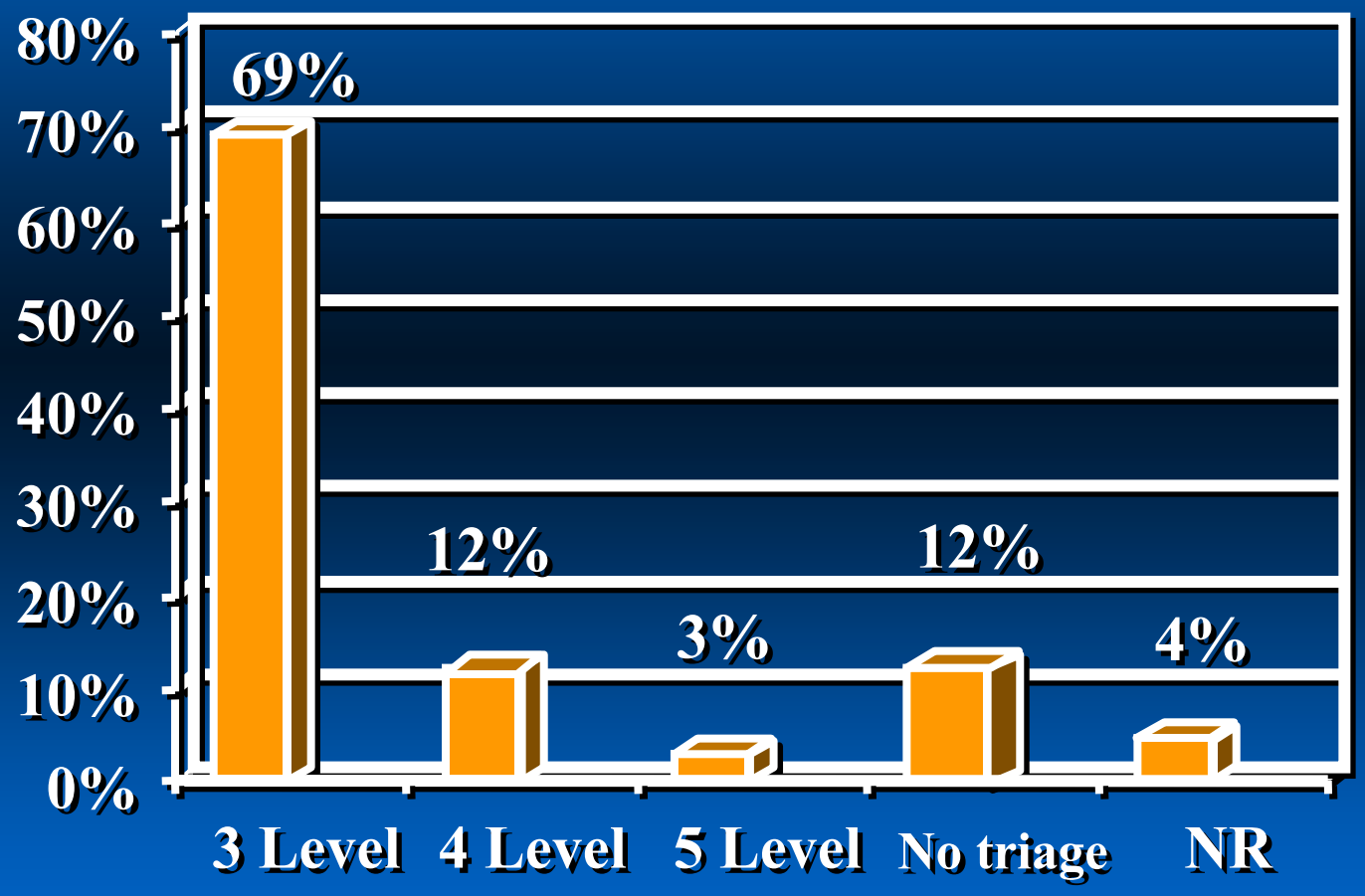
# Why are we so busy and overcrowded?

- 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

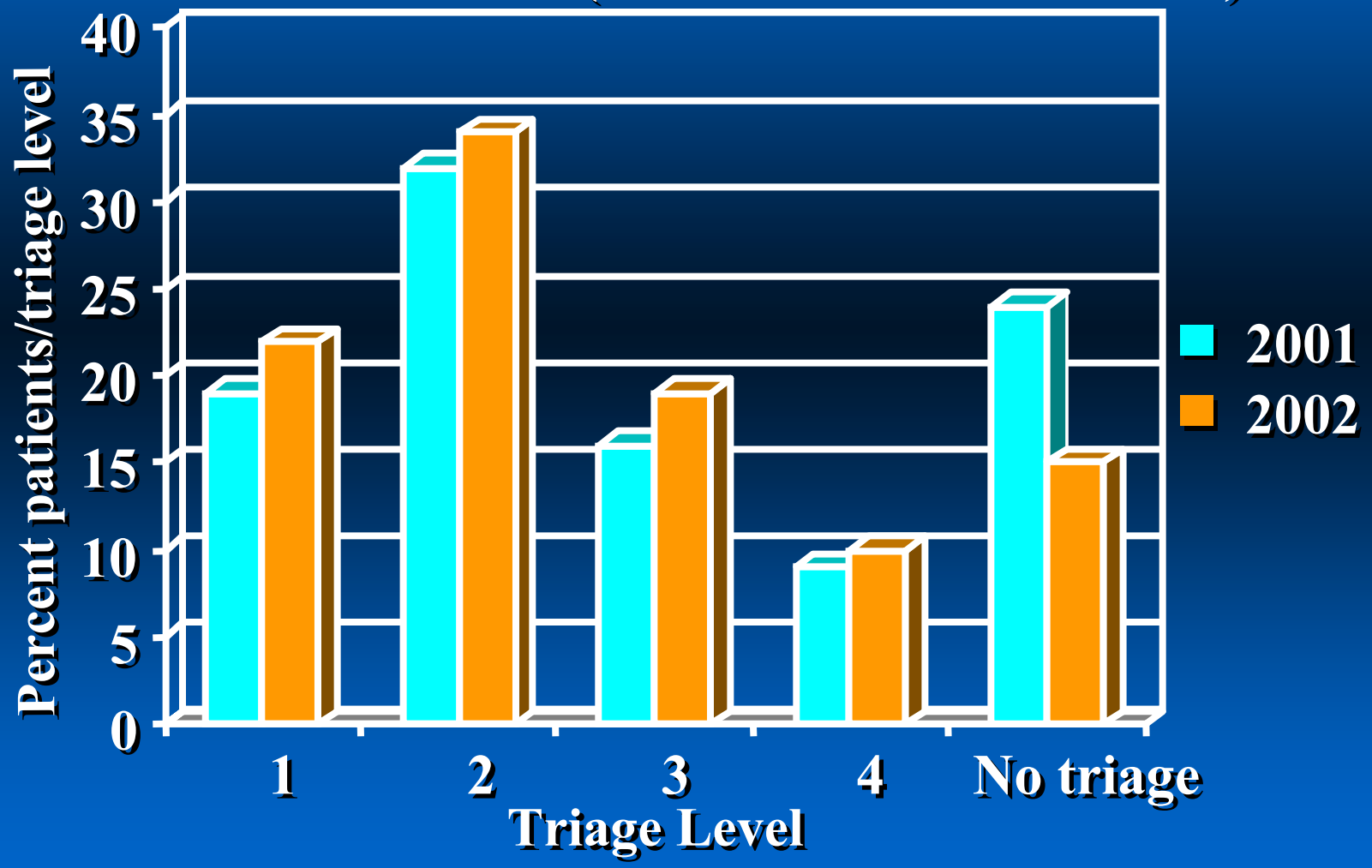
# Triage Systems in Use

## DEEDS, 2001



# 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 ED s 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)

(Wuerz et al. Inconsistency of ED Triage. Annals of EM. 1998;32:431-435)

# 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

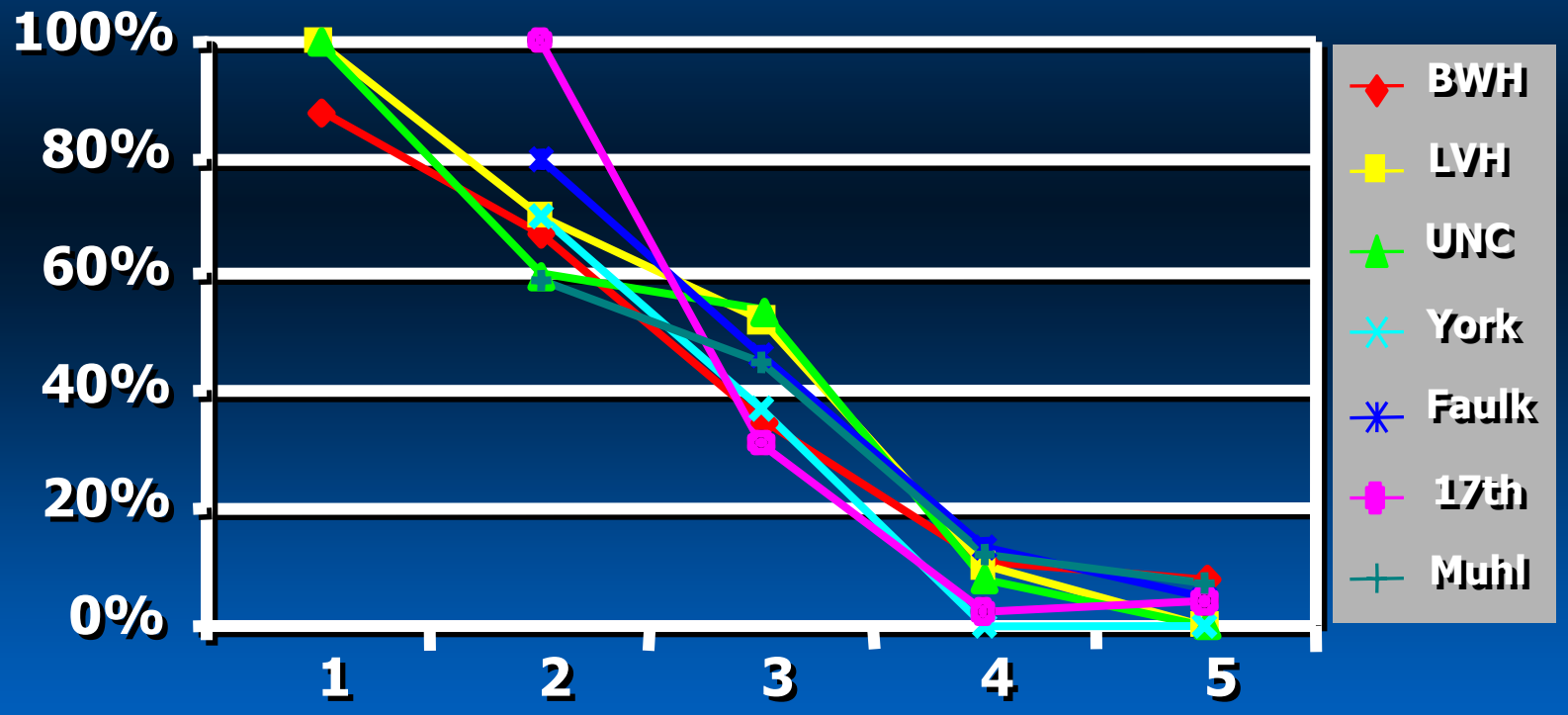
# ESI Reliability Studies

- 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


1. Eitel, Travers et al. The emergency severity index triage algorithm version 2 is reliable and valid. Acad Emerg Med 2003;10:1070-1080.
2. Tanabe, Gimbel et al. Reliability and validity of scores on the Emergency Severity Index Version 3. Acad Emerg Med 2004;11:59-65.

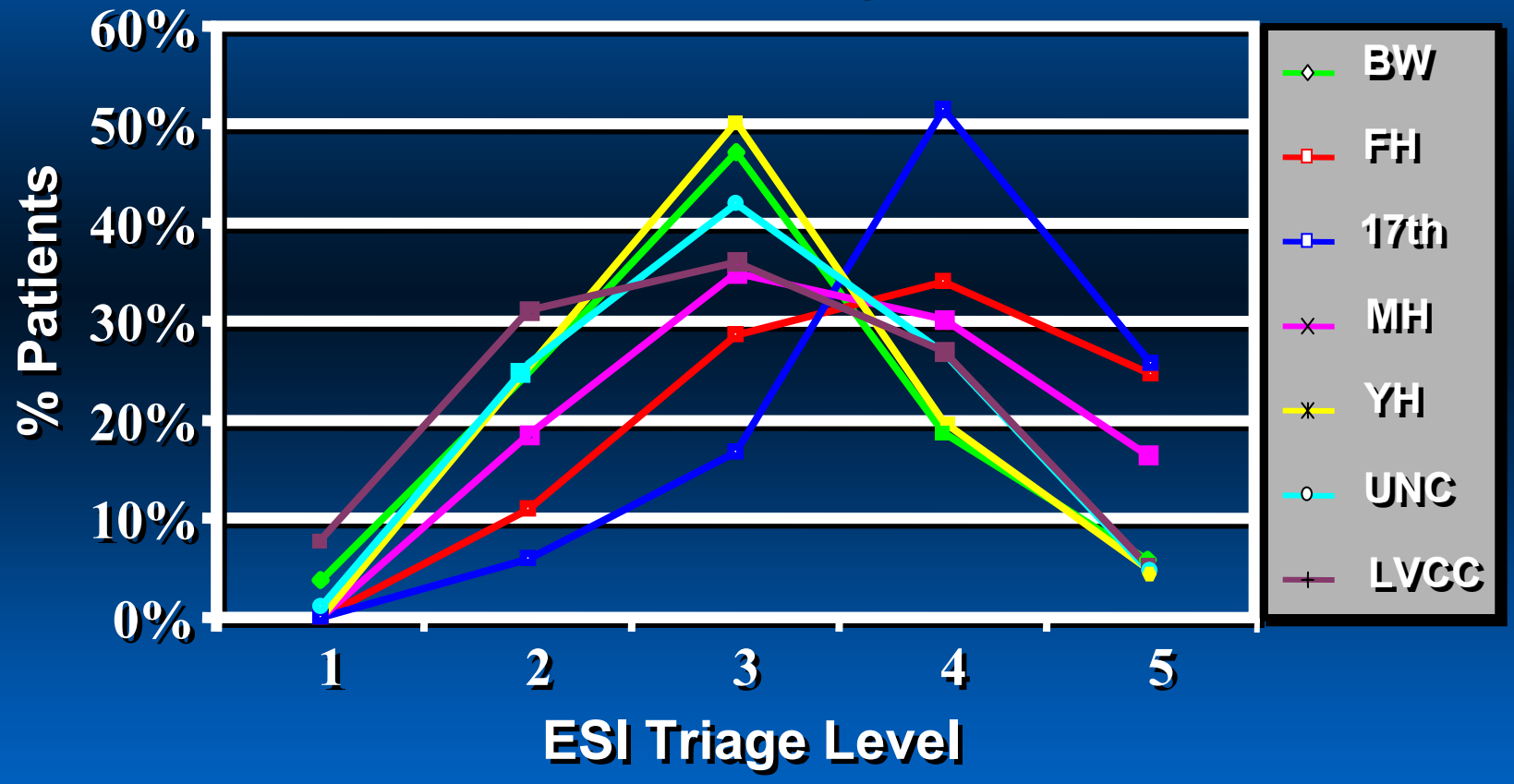
# Validity - Hospitalization

Eitel et al., 2001, Annals of Emergency Medicine



# ED Benchmarking

## Case Mix by Site



# Summary

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