

Mini-evaluation of triage accuracy

By Glenn Donnelly, RN, ENC(C), BScN, MN, PhD, Assistant Professor, College of Nursing, University of Saskatchewan & Nurse, Emergency Department, Pasqua Hospital, and Jerry Bell, RN, ENC(C), Clinical Development Educator, Emergency & Emergency Medical Services, Regina Qu'Appelle Health Region, and Undergraduate Student, College of Nursing, University of Saskatchewan

Key words: triage, emergency assessment

Introduction

Triage is defined as “a sorting process utilizing critical thinking in which an experienced registered nurse assesses patients quickly on their arrival in the emergency department. This is achieved by assessing and determining the severity or acuity of the presenting problem, processing patients into a triage category and determining and directing patients to appropriate health resources” (National Emergency Nurses Affiliation & Canadian Association of Emergency Physicians, 1998). Triage is one of the most challenging responsibilities of the emergency room nurse. Safe, effective patient care begins with triage assessments for which the emergency room nurse is accountable.

Little is known about the accuracy and reliability of current triage methods. A study by Brillman, Doezema, Tandberg, Sklar, Davis, Simms, and Skipper (1996) examined agreement among observers with regard to the need for emergency department care and ability to predict at triage the need for admission to the hospital and compared these findings with admission rates after medical evaluation and management. The results showed great variability among physicians, nurses and a computer program with regard to triage decisions. Comparison of the three groups' triage decisions with actual data after medical evaluation and management showed that none of the three performed well in predicting which patients required admission. Based on these findings, the investigators called for validated and standardized triage methods. Pain is most frequently the symptom that brings patients to the hospital emergency department. Puntillo, Neighbor, O'Neil, and Nixon (2003) studied nurses' initial assessment of pain with subsequent triage. They found that there was considerable underestimation of pain in both triage and clinical areas, which has great potential to have negative effects if appropriate treatment is not initiated. Kilner (2002) examined theoretical triage decision-making amongst pre-hospital emergency personnel, physicians and nurses. From this study, there is little difference in the accuracy of triage decision-making between the professional groups, with physicians and nurses scoring marginally better than paramedics. The rates of over-triage are high, posing the risk of overwhelming available resources. Under-triage rates are also high, with potential life-threatening conditions going unrecognized.

The triage system evolved as an efficient way to separate patients requiring immediate medical attention from those who could wait. Frequently, the question is asked, “How accurate are our triage assessments?” In an effort to determine how effective emergency nurses were in triaging patients that presented to emergency, this mini-evaluation was conducted in the two tertiary care hospitals in a western Canadian city.

Method

Cases from the Canadian Emergency Department Triage and Acuity Scale: An Educational Program for Registered Nurses were presented in four sets of 18, 19, 23 or 24 cases. The emergency room nurses were to assess the information provided and make a determination of which triage category to place the patient in the case. The triage categories developed by the National Emergency Nurses Affiliation (NENA) and the Canadian Association of Emergency Physicians (CAEP) are used as standards in this mini-evaluation.

All questionnaires were completed on electronic scan sheets anonymously and the scoring sheets were coded only as to which hospital they were from.

Results

Thirteen respondents at one hospital completed the survey, and only two at the other hospital chose to participate. Response rate was not calculated.

Findings

Overall, the number of cases assessed correctly according to the triage standards set out by NENA and CAEP was 53.5%. The number is further broken down into the percentage within each category that was assessed correctly.

Resuscitation	Emergent	Urgent	Less-Urgent	Non-Urgent
55.3%	47.52%	58.62%	54.83%	51.28%

In doing the analysis of the data, a further question was asked, “If patients presented in the case study were not assessed to the correct triage category, then which category were they placed in?”

A. Resuscitation category

For those cases that correctly should have been assessed as “resuscitation” 34.04% were assessed as “emergent” while 4.25% were assessed as “urgent.”

Resuscitation	Emergent	Urgent	Less-Urgent	Non-Urgent
61.70%	34.04%	4.25%		

B. Emergent category

For those cases that correctly should have been assessed “emergent”, 3.96% were categorized in the higher category of “resuscitation” while 34.65% were assessed as “urgent,” 12.87% were “less urgent” and .99% were “non-urgent.”

Resuscitation	Emergent	Urgent	Less-Urgent	Non-Urgent
3.96%	47.52%	34.65%	12.87%	.99%

C. Urgent category

For those cases that correctly should have been assessed “urgent,” 13.79% were assessed at the higher category of “emergent,” while 22.41% were categorized as “less urgent,” and 3.44% were categorized as “non-urgent.”

Resuscitation	Emergent	Urgent	Less-Urgent	Non-Urgent
	13.79%	58.62%	22.41%	3.44%
*1.7% of the responses were invalid.				

D. Less than Urgent category

For those cases that correctly should have been assessed as “less-urgent,” 1.61% were assessed as “emergent” and 14.52% were assessed as “urgent,” with the remaining 29.03% assessed as “non-urgent.”

Resuscitation	Emergent	Urgent	Less-Urgent	Non-Urgent
	1.61%	14.52%	54.83%	29.03%

E. Non-Urgent category

For those cases that correctly should have been assessed as “non-urgent,” 33.33% were assessed as “less-urgent,” 12.82% were assessed as “urgent” and 2.56% were assessed as “emergent.”

Resuscitation	Emergent	Urgent	Less-Urgent	Non-Urgent
	2.56%	12.82%	33.33%	51.28%

Limitations


1. A major limitation of this mini-evaluation was that the validity of the cases and their assigned triage level was not established or documented.
2. There is no information about the triage nurses who completed the study question with regards to the numbers of years of experience, age, education level, triage training etc.
3. The small number of respondents (n=2) at one site make it difficult to make inferences about the differences between the two sites.
4. The results of this mini-evaluation represent a snapshot only of the work of the triage nurses. The assessment may yield more useful data if it was done at multiple times over a longer period of time.

5. The method uses hypothetical cases and does not reflect the context in which triage nurses assess acuity. Therefore, the findings of this mini-evaluation have to be considered in that light. A more rigorous design would provide more robust findings.

Discussion

Although the majority of cases were triaged correctly according to the triage standards, the cases that were not categorized correctly tended to be the next lower level of triage, with the exception of the “non-urgent” cases, which, for the most part, were triaged to the next higher category. This result could lead to the assumption that triage nurses in this sample population have not “fine-tuned” their triage skills or that the categories do not have clear limits. Clinical judgment at the very best always has an element of subjectivity. Another consideration is that the triage categories take into account the context within which the patient presents. These contextual variables may have an impact on what triage category the nurse places the patient.

This exploratory study provided the department with the impetus to re-examine the triage process. There is recognition that triage processes and standards need to be examined using a quality improvement philosophy, which could lead to further adaptation and refinement of our existing triage process. Clearly, moving from three categories of triage – emergent, urgent and non-urgent – to the five-level Canadian Triage and Acuity Scale (CTAS) has provided an opportunity to more appropriately direct the flow of patients in a busy emergency department. The training provided for triage nurses needs to be re-examined with the view of developing the triage nurses’ role and competencies. Training in history-taking and physical assessment are two areas that would provide triage nurses with added skill. Additionally, formal triage training utilizing the principles and standards of the Canadian Triage Acuity Scale (CTAS) could potentially improve the outcome of reliability and accuracy of triage decisions.

As this small-scale study was conducted with a group of triage nurses who have had little formal training in triage methods, it would be instructive to repeat the study following formal training in triage using the Canadian Triage Acuity Scale (CTAS) model. 

References

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