



Accuracy of Emergency Nurse Triage of Patients with Symptoms Suggestive of Acute Myocardial Infarction

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Author Disclosures

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Learner Objectives

- * Following this presentation, the learners should be able to identify:
 - * a) the subtle symptoms of AMI and
 - * b) their own possible biases when interacting with patients in need of emergent care.

Background

ANNUALLY...

- * 6 million people present to an ED cc: chest pain
- * 6 million more present w symptoms of possible AMI
- * 1 million are diagnosed with AMI
- * 350,000 die during the acute phase

Murphy et al. (2013); NCHS (2008); IHI (2009)

Standards of Care

Standards of ED Cardiac Care

- * Obtain ECG <10 min
- * See a healthcare provider <10 min
- * Door to Needle <30 min
- * Door to Balloon <90 min

Standards of ED RN Triage

- * Experienced RN in role
- * Triage in 2-5 min
- * level system (3 or 5)

Specific Aim

To determine if patient characteristics (gender, age, race/ethnicity, symptom presentation) & nurse characteristics (age, years of experience, and education) affect accuracy of ED RN triage of patients with symptoms suggestive of AMI.

Donabedian Model

Structure:
gender, age,
race of RN and
patient,
symptom
presentation



Process: Triage
process,
interpersonal
interaction



Outcomes:
Accurate triage
level designation

Lit Review: Accuracy in Triage

Authors	Accuracy rate	sample
Considine, Ung, & Thomas (2000)	58%	31 RNs
Considine, LeVasseur, & Villanueva (2004)	61%	322 RNs
Goransson, Ehrenberg, Marklund, & Ehnfors (2005)	57.6%	423 RNs
Wilper et al. (2008)	70% in pts w AMI	92,173 patients
Atzema, Austin, Tu, & Schull (2009)	50% in pts w AMI	3,088 patients
Atzema, Schull, & Tu (2011)	67.6% in pts w AMI	680 patients

Lit Review: Patient Characteristics

- * Females are judged less urgent
- * African Americans are judged less urgent
- * Age bias is noted in triage decisions, ECG obtainment, and hospitalization decisions.

Lit Review: Symptom Presentation

- * Incidence of classic symptoms during an AMI as low as 67% in previous studies
- * Gender & race specific symptoms
- * Diabetes changes the picture
- * Atypical symptoms may impact triage

Lit Review: RN Characteristics

Authors	Results	Sample
Considine et al. (2000)	No relationship	31 RNs
Considine, Ung, & Thomas (2001)	Positive correlation BSN & accuracy; no relationship ED experience & accuracy	31 RNs
Worster et al. (2004)	Experience not related to consistence in triage	10 RNs
Arslanian-Engoran (2004)	No association between experience and accuracy	13 RNs
Goransson, Ehrenberg, Marklund & Ehnfors (2006)	No relationship between accuracy and education or experience	423 EDs

Research Design

- * A descriptive correlational study using retrospective data from the EMR
- * IRB approval was obtained from both the healthcare system and Georgia State University.

Setting

- * One healthcare system in the Southeast that operates two EDs at separate geographical sites.

Inclusion/Exclusion Criteria

- * Patients 21 years old and greater with symptoms suggestive of AMI were included.
- * Patients in critical condition were excluded.

Record selection

- * 559 records
- * - 175 via ambulance
- * - 98 obvious source non-cardiac
- * = 286 records (accuracy, patient characteristics)
- * - 92 records (no RN consent)
- * = 194 records (RN characteristics)

Characteristics of patient sample

- * Male 48.1%; Female 51.9%
- * Caucasian 67.1%; African American 31.1%
- * Most of the patients were non-smokers (74.6%).
- * A majority of the patients (88.7%) reported chest pain.

Characteristics of Triage Nurses

- * 70% female; 100% Caucasian
- * Age range 26-64; mean 45
- * 46% ADN; 19% BSN; 3.5% Diploma
- * Nurse experience 3-35 years; mean 18
- * ED Nurse experience 3-35 years; mean 11

Results

- * **54%** of the patients that presented with symptoms suggestive of AMI were assigned a triage level of 2 (in a 5 level system).

Logistic Regression Results

Variable	B	SE	Wald	OR
Age of patient	.01	.01	.25	1.01
Male vs. female	-.37	.26	2.07	.69
Caucasian vs. non-Caucasian patient	.73	.28	6.58 *	2.07
No chest pain vs. chest pain	.94	.41	5.24 *	2.55
RN age	.07	.03	4.34 *	1.07
RN experience in years	-.03	.03	.53	.98
RN ED experience in years	-.05	.27	.04	.95

Discussion

- * Accuracy and...
 - * Patient Characteristics
 - * Symptom Presentation
 - * Nurse Characteristics

Limitations

- * Retrospective EMR review
- * Participation of RNs
- * Other variables not identified that may impact triage

Nursing Implications

- * Strategies must be explored and implemented that will improve accuracy.
- * Targeted educational interventions:
 - * Initial education & ongoing competencies
 - * Discussion of peer-reviewed nursing literature
 - * Memory aids
 - * Clinical Case review and follow up

Future Research

- * Three considerations in the research of triage RN accuracy in the ED for patients with suspected AMI...