

Paramedic CAT

Title: Paramedics' ability to triage patients using CTAS codes.

Reported by: Gavin Moore

2nd Party Appraiser:

Clinical Scenario:

One aspect of a paramedics' job is to triage a patient on scene so that receiving hospitals are better prepared for incoming patients. This is an essential piece that paramedics deal with on every call. These quick decisions on scene can affect not only your patients' care, but also other patients' care who may have a higher level of acuity and require quicker intake at the hospital.

PICO Question: (Population, Intervention, Comparison, Outcome)

In paramedics, when comparing pre-learning session vs post-learning session, how accurately can they correctly triage patients using the CTAS.

Search Strategy:

Ambulances.sh OR Emergency Medical Technicians.sh OR Air Ambulances.sh OR emergency medical services.sh OR paramedic.tw OR ems.tw OR emt.tw OR prehospital.tw OR pre-hospital.tw OR first responder*.tw OR emergency medical technicians.tw OR emergency services.tw OR Ambulance*.tw OR HEMS.tw OR field triage.tw OR out-of-hospital.tw AND CTAS OR Canadian Triage Acuity Scale*

Search strategy adapted from Olausson et. al (2017) paper titled: Paramedic Literature search filters: optimised for clinicians and academics on paramedic search filters.

Search Outcome:

MEDLINE – 168 results

CINAHL – 115 Results

Total – 283 Results

Papers were scanned briefly and selected based on relation to PICO question.

Relevant Papers:

AUTHOR, DATE	POPULATION: SAMPLE CHARACTERISTICS	DESIGN	OUTCOMES	RESULTS	STRENGTHS & WEAKNESSES
Atack, L., Rankin, J., & Then, K. (2005).	23 Emergency Nurses across Canada.	Surveys, Chart Audit and Interviews Cross-sectional study	To see if 6-week online course will improve emergency nurse's ability to triage patients using the CTAS. Learning online and retention of information	Nurses ability to triage patients were deemed more thorough, accurate and consistent. There was 99.7% agreement between CTAS graduates and expert reviewers within one triage level.	Strengths: <ul style="list-style-type: none"> - The study found that an online course improved nurses triage practice - The study incorporated participants from all over Canada. - Identifying new strategies to teach concepts through online medium Weakness: <ul style="list-style-type: none"> - Small population size - Different profession, not paramedics - Didn't compare their triage abilities prior to the 6-week online course - Didn't have inclusion/exclusion criteria and/or a reason to why they interviewed so few nurses when there were 176 eligible nurses
Leeies, M., French, C., Strome, T., Weldon, E., Bullard, M., & Grierson, R. (2017).	EMS including Primary Care Paramedics and Advanced Care Paramedics from the Winnipeg Fire and Paramedic Service Emergency Department Triage Nurses	Prospective, observational Cohort Study Patients age 17 and older	Assessment of Paramedics and Emergency Department Nurses interrater reliability of CTAS codes.	"when compared to the triage nurses, EMS tended to score patients equal or lower for CTAS 1,2,3 patients, but tended to score equal or higher for CTAS 4 and 5 Patients" (Leeies et al., 2017)	Strengths: <ul style="list-style-type: none"> - Large number of participants (14,378) - Data collected prospectively - Both EMS and ED nurses were trained prior to data collection using the same standardized

				<p>“EMS providers can assign CTAS scores during routine clinical practice with moderate interrater reliability compared to ED triage nurses” (Leeies et al.,2017)</p>	<p>CTAS education curriculum</p> <p>Weakness:</p> <ul style="list-style-type: none"> - Comparing results of CTAS scores to other health care providers instead of against an objective policy or guideline. Allowing for nurses and EMS subjectivity to potentially intertwine. - “Triage Drift” hard to factor into results, which can override a previously calculated CTAS score based on patients already present in the Emergency Department.
<p>Smith, D. T., Snyder, A., Hollen, P. J., Anderson, J. G., & Caterino, J. M. (2015).</p>	<p>EMS and fire from the Columbus Division of Fire. (1,500 employees)</p>	<p>Descriptive correlational study</p> <p>Secondary analysis of patient database</p>	<p>“this study sought to determine if a relationship exists between paramedics’ triage scores and emergency nurses’ scores in the emergency department using 2 common 5-level triage instruments, as well as to determine whether either instrument correlates with patient admission.” (Smith et al.,2015)</p>	<p>Paramedics found to be relatively accurate using a structured triage system.</p> <p>Little correlation between CTAS codes and ESI codes to determine whether or not patients would be admitted or discharged.</p> <p>There is little uniformity in paramedic and emergency department triaging systems and communication.</p>	<p>Strengths:</p> <ul style="list-style-type: none"> - Good preliminary results looking at CTAS and ESI triaging systems and their compatibility (not much research in this area) - Paramedics were provided with a pre-training PowerPoint session and test to ensure they understood the CTAS scale. They were also given manuals to refer to on calls. - Good step for creating a multidisciplinary triage scale that

					<p>both paramedics and ED nurses can use</p> <p>Weakness:</p> <ul style="list-style-type: none"> - localized in Columbus Ohio, hard to make generalizations off such a small group. - Small sample sizes in CTAS 1, CTAS2 / ESI 1, ESI 5 categories - Potential for paramedics and nurses to communicate their CTAS and ESI codes when offloading patients causing skewed data. - Different training methods, some received live training which could skew abilities of some of the paramedics in the study. - Call fatigue hard to factor for, paramedics may just "enter a number" for CTAS codes instead of putting real thought into the process - Lost over 6000 cases that could have skewed the results
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Comments:

Most of the studies found were based on Emergency Department nurses triage rating of a patient and seeing if there was a high degree of interrater reliability between them

and paramedics. Also, most of the studies used a smaller sample size from local emergency departments making the results not optimal for generalizations to a larger population. Studies need to be more directed at paramedics' ability to triage based off of the Canadian Triage Acuity Scale guidelines rather than comparing results against another health care professionals. There were multiple limitations in the studies that also should be addressed before conclusions can be made (*Triage Drift, "enter a number," equal training of CTAS, no comparison of pre-training triage scores and post-training triage scores to see if there were any improvements in triaging ability.*)

Clinical Bottom Line:

More research is required to determine if paramedics can properly triage patients using CTAS and, more specifically, comparing paramedics pre- and post-training sessions on CTAS. There is limited evidence that suggests paramedics, post-training sessions, show a moderate level of improvement in accuracy when using the Canadian Triage Acuity Scale when comparing to emergency department nurses triaging scores.

References

- Atack, L., Rankin, J., & Then, K. (2005). Effectiveness of a 6-week Online Course in the Canadian Triage and Acuity Scale for Emergency Nurses. *Journal of Emergency Nursing, 31*(5), 436-441. doi:<https://doi.org/10.1016/j.jen.2005.07.005>
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- Olaussen, A., Semple, W., Oteir, A., Todd, P., & Williams, B. (2017). Paramedic Literature search filters: optimised for clinicians and academics. *BMC Medical Informatics & Decision Making, 17*, 1-6. <https://doi-org.ezpxy.fanshawec.ca/10.1186/s12911-017-0544-z>
- Smith, D. T., Snyder, A., Hollen, P. J., Anderson, J. G., & Caterino, J. M. (2015). Analyzing the Usability of the 5-Level Canadian Triage and Acuity Scale by Paramedics in the Prehospital Environment. *JEN: Journal of Emergency Nursing, 41*(6), 489-495. <https://doi-org.ezpxy.fanshawec.ca/10.1016/j.jen.2015.03.006>