

Meeting Canadian Emergency Department Triage and Acuity Scale benchmarks in a rural emergency department

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Introduction: The Canadian Emergency Department Triage and Acuity Scale (CTAS) was implemented in 1999. The CTAS aims to more accurately define patients' needs for timely care and provide operating objectives to standardize this care. These objectives are not being met across Ontario. The purpose of this study was to determine if the CTAS benchmarks were being met at a rural emergency department (ED).
Methods: All ED visits to South Huron Hospital from Apr. 1, 2003, to Mar. 31, 2004, were reviewed. The percentage of visits receiving each CTAS category (I–V) was calculated. The median and 90th percentile time to physician initial assessment (PIA) were quantified by CTAS level.
Results: There was a total of 10 286 ED visits with 113 (1.1%) excluded because of missing triage codes. The percentage of visits assigned to CTAS categories I to V was 0.3, 2.4, 16.0, 42.7 and 38.5, respectively. Time to PIA in minutes was 1, 12, 24, 28 and 27 for CTAS I to V, respectively.
Conclusion: The CTAS guidelines for PIA were met at this rural ED.

Introduction : C'est en 1999 que l'on a adopté l'Échelle canadienne de triage et de gravité (ECTG). Cette échelle vise à définir avec plus de précision les besoins des patients afin qu'ils reçoivent les soins appropriés sans retard, mais aussi à établir les objectifs de rendement afin de standardiser ces soins. Or, en Ontario, on note une certaine disparité quant à l'atteinte des objectifs fixés. La présente étude avait pour but de déterminer si les objectifs de l'ECTG étaient atteints dans un service d'urgence rural.
Méthodes : Toutes les consultations au service d'urgence de l'Hôpital South Huron entre le 1 avril 2003 et le 31 mars 2004 ont été analysées. Le pourcentage de consultations auquel on a assigné une catégorie de l'ECTG (de I à V) a été calculé. Ensuite, la médiane et le 90^{e} percentile pour le temps d'attente avant l'examen médical initial selon la catégorie assignée à l'ECTG ont été établis.
Résultats : On a dénombré en tout 10 286 consultations au service d'urgence; on en a exclus 113 (1,1 %) qui n'avaient pas reçu de code de triage. On a établi comme suit les pourcentages des consultations assignées aux catégories I à V de l'ECTG : 0,3, 2,4, 16,0, 42,7 et 38,5, respectivement. Quant à l'attente avant l'examen médical initial, elle était de 1, 12, 24, 28 et 27 minutes pour les catégories I à V de l'ECTG, respectivement.
Conclusion : Ce service d'urgence rural a atteint les objectifs préconisés dans les directives de l'ECTG pour l'examen médical initial.

INTRODUCTION

The Canadian Emergency Department Triage and Acuity Scale (CTAS) was implemented in 1999.[1] The main goals of the CTAS are to more accurately define patients' needs for timely care and allow emergency departments (EDs) to evaluate acuity levels, resource needs and performance against operating objectives.[2] Timely care is not only important for patient satisfaction,

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but also can contribute to better health outcomes, as seen in the example of early thrombolytics administration for cases of acute myocardial infarction.[3]

On presentation to an ED the patient will be assigned a CTAS code (from I — resuscitation, to V — nonurgent) by the triage nurse. This indicates the time frame within which the patient should be seen by a physician for timely care (Table 1). This designation is based on the severity of the presenting complaint and is related to the predicted outcomes of the associated presenting complaint with delayed treatment.[4] The CTAS was adapted from the widely validated Australian National Triage Scale, and its reliability has been proven.[2,5,6]

The implementation of the CTAS guidelines has raised many issues for rural EDs. For example, it has been suggested that the guidelines for time to physician initial assessment (PIA) associated with more critically ill patients were unreasonable.[7] Many rural emergency physicians (EPs) are on call from home, making the CTAS time goals for high-acuity patients logistically unattainable. Concerns were also raised about the poor communication between ambulances and the ED, with the EP not being called in until the patient arrived at the hospital, and inadequate training of ED nurses in CTAS assignment, resulting in EPs being inappropriately called in to attend to nonurgent cases for the sake of CTAS adherence.[7] Overall, it was thought that adherence to the CTAS guidelines would increase the already difficult on-call burden placed on rural physicians. As a result, the CTAS guidelines were "ruralized" in 2003 to include the ability of the triage nurse to refer level-V patients to their family physician or more appropriate health care facilities, thus alleviating the need for the on-call EP to attend nonurgent cases.[7]

Recent studies have shown that the CTAS guidelines for time to PIA are not being met in EDs across Ontario and Canada.[8–10] Whether or not this finding is consistent in rural EDs has yet to be specifically documented in the literature. The purpose of this study was to determine whether CTAS benchmarks for time to PIA were being met in a rural Ontario ED.

METHODS

South Huron Hospital (SHH) is a small rural hospital that provides 24-hour emergency care for 4000 local residents of Exeter, Ont. There are 7 general practitioners working in Exeter, with an additional 7 who service the hospital's catchment area of about 20 000 people. Furthermore, 11% of the patients presenting to the SHH ED are "orphan patients" without a family doctor.[11]

The SHH ED uses an on-call EP, who is not required to remain on site but must be within 15 minutes travel time of the hospital when on shift. The ED uses the "ruralized" management of patients triaged at CTAS level V (nonurgent), including the ability to defer nonurgent patients to the morning or have the attending nurse discharge the patient without having seen the EP.[7] The average patient volume of the SHH ED is about 11 000 visits per year.

In addition to the ED, SHH fully funds a walk-in clinic located across the street. The clinic is open from 4 pm to 7 pm each weekday and from 11 am to 2 pm on weekends and holidays. It experiences an annual volume of 9000 patients, with an average of about 24 patients per day. The clinic serves to decrease the ED patient load during typical peak visit hours.

Table 1. Descriptions of Canadian Emergency Department Triage and Acuity Scale levels and guidelines for time to assessment by an emergency physician[1]

CTAS level	Level description	CTAS time to physician assessment for timely care, min
I — Resuscitation	Conditions that require resuscitation or threaten life or limb, requiring immediate aggressive intervention	"Immediately" (< 5)
II — Emergent	Conditions that are a potential threat to life, limb or function, requiring rapid medical intervention or delegated acts	≤ 15
III — Urgent	Conditions that could potentially progress to a serious problem requiring emergency intervention. May be associated with significant discomfort or affecting ability to function at work or activities of daily living	≤ 30
IV — Less urgent/ semiurgent	Conditions related to patient age, distress, or that have the potential for deterioration or complications would benefit from intervention or reassurance	≤ 60
V — Nonurgent	Conditions that may be acute but are nonurgent or part of a chronic problem without evidence of deterioration	≤ 120

CTAS = Canadian Emergency Department Triage and Acuity Scale.

Data collection consisted of retrospective review. All ED visits to SHH from Apr. 1, 2003, to Mar. 31, 2004, were reviewed using the National Ambulatory Care Reporting System. Visits were excluded if they did not have a documented CTAS score, nurse triage time or time to PIA. The proportion of visits assigned to each CTAS category and for each disposition was calculated. The cohort median and 90th percentile times to PIA for each CTAS level were quantified. The data were compared with Ontario and other Canadian hospitals. Ethical approval for this study was granted by the SHH Medical Advisory Committee.

RESULTS

A total of 10 286 visits to the SHH ED took place between Mar. 31, 2003, and Apr. 1, 2004. Of these, 113 (1.1%) were excluded because of incomplete recording of CTAS assignment or absence of visit timeline data in the medical records, yielding a final sample of 10 173 visits. The mean patient volume was over 28 patient visits per day. The percentage of visits assigned to CTAS categories I to V is shown in Table 2. The median time to PIA in minutes for CTAS patients I to V was 1, 12, 24, 28 and 27, respectively, which meets the CTAS benchmark in each category (Fig. 1). Furthermore, the median time to PIA at SHH surpasses the results from 163 Ontario hospitals and 8 other Canadian hospitals in each category. The time to PIA for the 90th percentile of SHH ED visits was also found to be better than that of the provincial values in each CTAS category, and met the CTAS guideline for levels IV and V.

DISCUSSION

The purpose of this study was to determine whether the CTAS benchmarks for timely patient care were being met at a rural ED. The results confirm that the CTAS time guidelines were met in all 5 triage categories at this rural ED. These findings can be directly contrasted to those published in the Canadian Institute for Health Information (CIHI) report on ED wait times.[9] The CIHI report showed that the median wait times for PIA from data collected from 163 Ontario EDs and 8 others across Canada did not meet the established benchmarks for patients assigned a CTAS level of I, II or III. The CIHI data for the 90th percentile of visits did not meet the CTAS guidelines in any triage category. Other papers confirm that the CTAS guidelines are not being met provincially and nationally in all categories.[8,10] The question remains as to how certain hospitals are able to meet the CTAS guidelines and others are not.

The acuity of patients seen at SHH could have contributed to more timely care than has been documented elsewhere. In this study, only 18.7% of patients presenting to the SHH ED were triaged as CTAS level I, II or III. In contrast, the CIHI report[9] found that more than half (63%) of patients triaged in Greater Toronto Area hospitals were triaged with a CTAS score of I, II or III. The increased proportion of more critically ill patients in the urban setting may be contributing to delays in care, by overloading the system with this type of patient and preventing EPs from taking on more patients until the current patients are discharged. A rural ED with less volume and acuity may not encounter similar barriers to timely care, resulting in better adherence to the CTAS guidelines.

However, there may not be a difference in acuity between this rural hospital and hospitals in the Greater Toronto Area. Low-volume EDs are funded based on numbers of patients seen. High-volume

Table 2. Number of visits for each Canadian Emergency Department Triage and Acuity Scale category from Mar. 31, 2003, to Apr. 1, 2004

CTAS score	No. (%) of visits
I	34 (0.3)
II	249 (2.4)
III	1630 (16.0)
IV	4343 (42.7)
V	3917 (38.5)

CTAS = Canadian Emergency Department Triage and Acuity Scale.

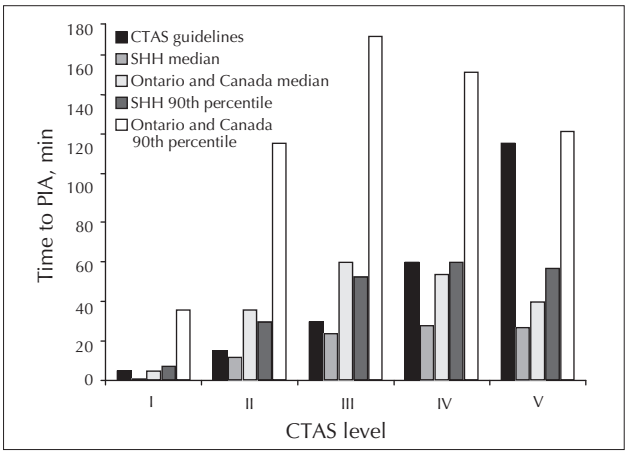


Fig. 1. Comparison of the Canadian Emergency Department Triage and Acuity Scale (CTAS) guidelines for time to physician initial assessment (PIA) by CTAS level against both the South Huron Hospital (SHH) and 163 Ontario and 8 other Canadian hospital[9] median and 90th percentile values.

hospitals are funded based on volume and acuity of patients. This would provide a financial incentive to "up code" patients to a higher CTAS level to increase funding for the ED. It is well recognized that health care providers are like anyone else and their behaviour can be motivated through financial incentives and payment models.[12] No study has been done to investigate whether this phenomenon exists and this may provide a direction for future research. Therefore, the excellent times to PIA in this rural ED compared with urban EDs and the provincial statistics may just be a reflection of a well-functioning ED.

Our experience at SHH may provide some insight into the delivery of timely care. As previously mentioned, SHH is fortunate to have a walk-in clinic associated with the hospital. This allows for significant diversion of low-acuity patients from the ED during typical peak hours. This strategy may be a factor in substantially reducing crowding in the ED and improving concordance with the CTAS guidelines. Therefore, patient diversion models may be worth examining further, as the possible implementation of parallel systems at other rural and urban sites may help decrease ED wait times, increase adherence to the CTAS guidelines and, most importantly, improve health outcomes.

There are clear differences between the methods through which large urban EDs and their rural counterparts can offer care. These differences must be taken into account when implementing strategies to decrease ED wait times and better meet the CTAS guidelines for timely patient care. As it has been previously asserted[10] there is certainly no "one size fits all" solution to the current problem.

Limitations and future research

This study compares only one rural ED to 163 other Ontario hospitals and 8 other Canadian hospitals. These results may be an anomaly and cannot necessarily be extrapolated to all rural EDs. Reviewing the CTAS data from multiple rural sites and comparing them with urban data would help address this limitation.

CONCLUSION

This paper demonstrates that the CTAS guidelines for PIA are met at this rural ED and are better than published medians and 90th percentiles from 163 Ontario hospitals and 8 other Canadian hospitals.

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