



# RESEARCH ARTICLE

## THE SIGNIFICANCE, AWARENESS AND IMPACT OF CANADIAN TRIAGE AND ACUITY SCALE (CTAS) IN EMERGENCY CARE BETWEEN MEDICAL STAFF

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### ABSTRACT

The Canadian Triage and Acuity Scale (CTAS) plays a crucial role in emergency departments by prioritizing patient care based on the severity of their condition. This study aimed to assess healthcare providers' knowledge and understanding of CTAS levels, criteria for assigning triage acuity, and implications for patient outcomes and hospital efficiency. Data from 507 participants across diverse healthcare specialties revealed a balanced gender distribution, with physicians being the largest participant group. Findings showed that most participants understood the primary purpose of CTAS and recognized the presence of five acuity levels within the system. Additionally, respondents demonstrated knowledge of triage criteria, recommended timeframes for interventions based on CTAS levels, and responsibilities for assigning CTAS acuity. Ongoing training and proficiency in CTAS were highlighted as essential for optimal patient triage and care delivery. The study emphasizes the significance of regular re-assessment and education on CTAS protocols to ensure accuracy in patient triage and efficient emergency care delivery.

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## INTRODUCTION

The Canadian Triage and Acuity Scale (CTAS) is a vital tool implemented in emergency departments to prioritize patient care based on the severity of their condition, ensuring timely and appropriate treatment allocation. Developed to streamline patient flow and optimize resource utilization, CTAS categorizes patients into five levels of acuity, ranging from Level 1 (requiring immediate resuscitation) to Level 5 (non-urgent). This article aims to delve into the understanding and application of CTAS among healthcare providers, as well as its implications on patient outcomes and hospital efficiency.

## SUBJECT AND METHODS

In a study involving 507 participants from diverse healthcare specialties, including nurses, physicians, technicians, paramedics, and others, data was collected on gender

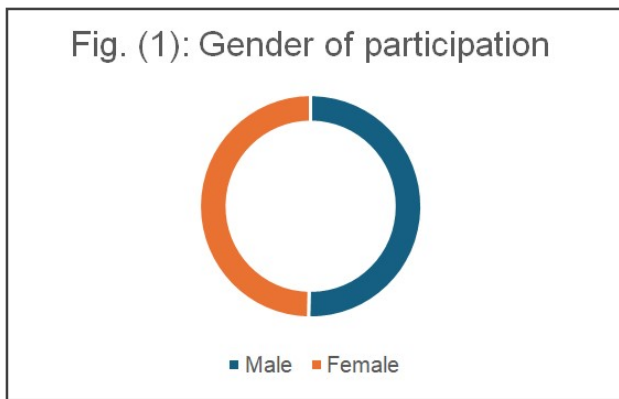
distribution, age groups, participant specialties, comprehension of CTAS levels, and criteria for assigning triage acuity. The study sought to evaluate participants' knowledge of CTAS and its application in enhancing emergency department operations.

## RESULTS

The study findings revealed a fairly balanced gender distribution among participants (255 males, 252 females) and a predominant age group of 20-40 years (66.90%).(Table 1, Fig. 1).

**Table 1. Gender type participate in the survey**

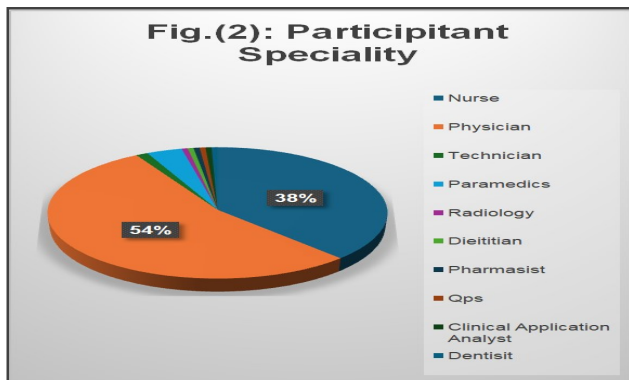
Gender	No.
Male	255
Female	252
Total	507



Physicians constituted the largest participant group (54.4%), followed by nurses (37.7%) (Table 2, Fig.2).

Table 2. ParticipantSpecialty

ParticipantSpecialty	No.	%
Nurse	191	37.7
Physician	274	54.4
Technician	6	1.2
Paramedics	18	3.6
Radiology	3	0.6
Dieitian	3	0.6
Pharmacist	3	0.6
Qps	3	0.6
Clinical Application Analyst	3	0.6
Dentisit	3	0.6
Total	507	100



Most participants recognized the primary purpose of CTAS as guiding patient flow in emergency departments (92.3%).

Table 3. What is the primary purpose of the CTAS

What is the primary purpose of the CTAS?	No.	%
To prioritize surgical procedures	18	3.6
To categorize medications	12	2.4
To guide patient flow management in emergency departments	468	92.3
To determine billing codes for services	9	1.8
Total	507	100

Additionally, responses indicated understanding of triage criteria, recommended timeframes for interventions based on CTAS levels, and responsibilities for assigning CTAS acuity. In the CTAS system, Level 1 indicates that the patient requires

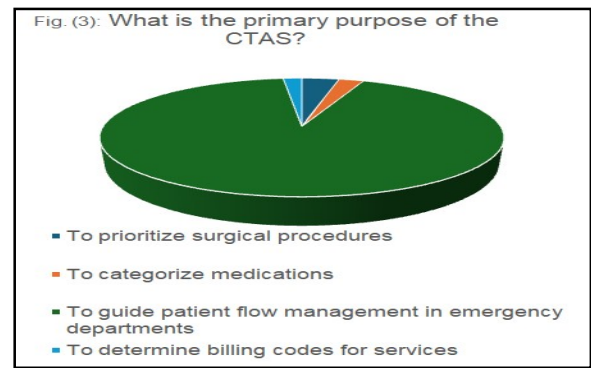
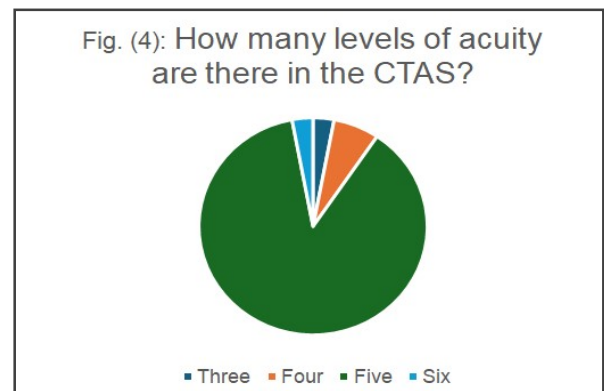


Table 4. How many levels of acuity are there in the CTAS?

How many levels of acuity are there in the CTAS?	No.	%
Three	15	3
Four	33	6.5
Five	444	87.5
Six	15	3
Total	507	100



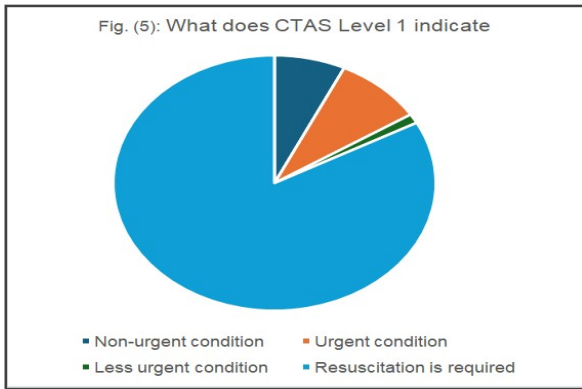
immediate resuscitation. In a study of 507 patients, it was found that 82.8% of patients with a CTAS Level 1 designation required resuscitation, while only 7.1% had non-urgent conditions (Table 5,6) (Fig5,6).

Table 5. What does CTAS Level 1 indicate

What does CTAS Level 1 indicate	No.	%
Non-urgent condition	36	7.1
Urgent condition	45	8.9
Less urgent condition	6	1.2
Resuscitation is required	420	82.8
Total	507	100

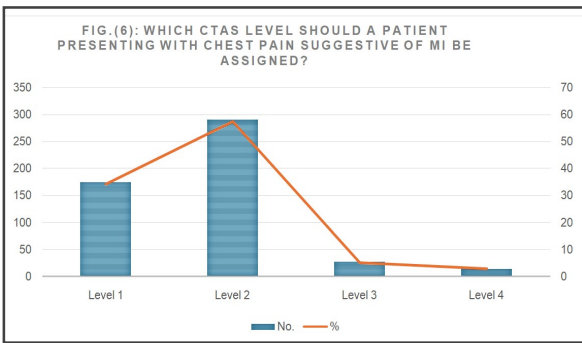
When a patient presents with chest pain suggestive of a myocardial infarction (MI), they should typically be assigned a CTAS Level 1, as determined by 34.3% of respondents in the study.

Level 2 is often assigned to patients deemed urgent and potentially able to deteriorate, according to 43.8% of respondents. (Table 6) (Fig. 6). In terms of reassessment, patients with a CTAS Level 3 should be reassessed within 30 minutes, as recommended by 52.1% of respondents (Table 7, Fig. 7).



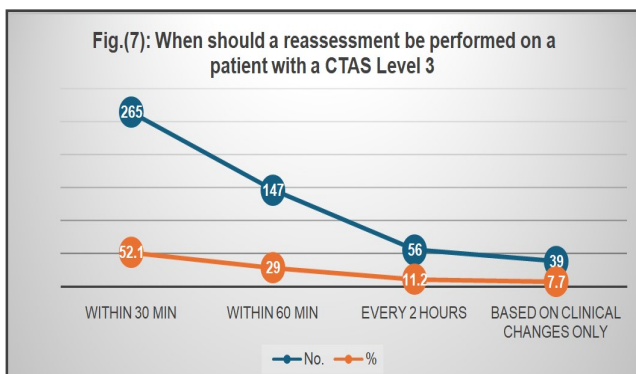
**Table 6. Which CTAS level should a patient presenting with chest pain suggestive of MI be assigned?**

Which CTAS level should a patient presenting with chest pain suggestive of MI be assigned?	No.	%
Level 1	175	34.3
Level 2	291	57.4
Level 3	27	5.3
Level 4	14	3
Total	507	100



**Table 7. When should a reassessment be performed on a patient with a CTAS Level 3**

When should a reassessment be performed on a patient with a CTAS Level 3	No.	%
Within 30 min	265	52.1
Within 60 min	147	29
Every 2 hours	56	11.2
Based on clinical changes only	39	7.7
Total	507	100



CTAS Level 2 is often assigned to patients who are emergent and potentially life-threatening, as indicated by 46.7% of respondents (Table 8, Fig 8).

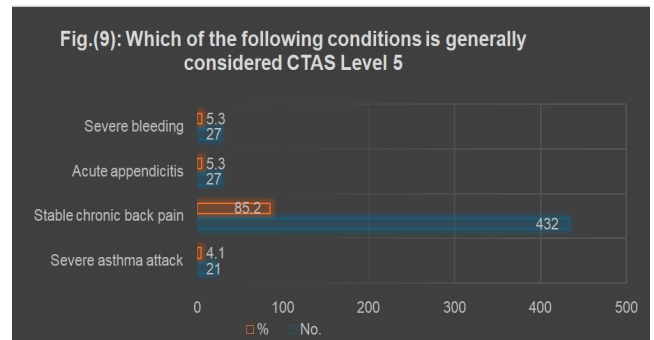
**Table 8. What does a CTAS Level 2 signify in terms of medical condition and urgency?**

What does a CTAS Level 2 signify in terms of medical condition and urgency?	No.	%
Non-urgent with minimum risk	15	3
Urgent with potential to deteriorate	222	43.8
Less urgent with stable condition	33	6.5
Emergent and potentially life-threatening	237	46.7
Total	507	100

Generally, sTable chronic back pain falls under CTAS Level 5 according to 85.2% of respondents, as it is considered a non-urgent condition with minimal risk (Table 9, Fig. 9).

**Table 9. Which of the following conditions is generally considered CTAS Level 5**

Which of the following conditions is generally considered CTAS Level 5	No.	%
Severe asthma attack	21	4.1
Stable chronic back pain	432	85.2
Acute appendicitis	27	5.3
Severe bleeding	27	5.3
Total	507	100



**Table 10. Which CTAS level typically corresponds with a high risk for loss of life or limb**

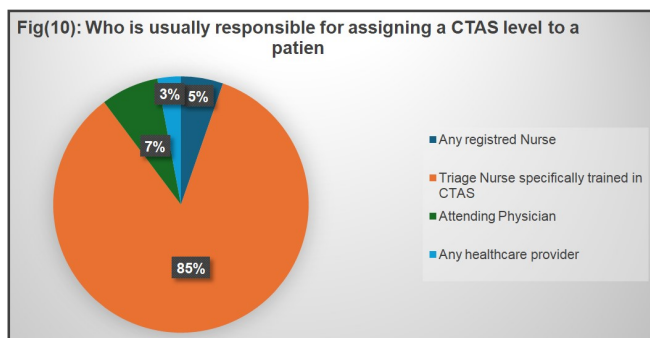
Which CTAS level typically corresponds with a high risk for loss of life or limb	No.	%
Level 1	312	61.5
level 2	150	29.6
Level 3	9	1.8
Level 4	36	7.1
Total	507	100

For CTAS Level 1 patients, immediate medical intervention is recommended, as stated by 88.8% of respondents (Table 10).

**Table 11. Who is usually responsible for assigning a CTAS level to a patient**

Who is usually responsible for assigning a CTAS level to a patient	No.	%
Any registered Nurse	27	4.7
Triage Nurse specifically trained in CTAS	428	84.6
Attending Physician	37	7.7
Any healthcare provider	15	3
Total	507	100

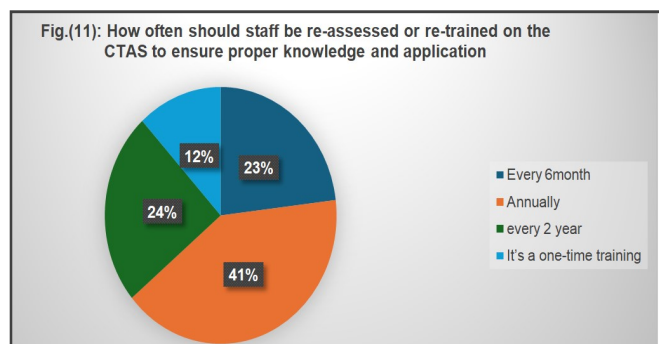
In assigning CTAS levels, the responsibility typically falls on a Triage Nurse specially trained in CTAS, cited by 84.6% of respondents.



In order to ensure proper knowledge and application of the Canadian Triage and Acuity Scale (CTAS) among staff, it is crucial to regularly re-assess and re-train them on the protocol. A survey of healthcare professionals found that 23.1% believe staff should be re-assessed every 6 months, 40.8% believe it should be done annually, and 24.3% believe it should be done every 2 years. However, 11.8% of respondents believe that CTAS training is a one-time event. It is clear that ongoing training and assessment are essential to maintaining proficiency in using the CTAS (Table 12, Fig.12).

**Table 12. How often should staff be re-assessed or re-trained on the CTAS to ensure proper knowledge and application**

How often should staff be re-assessed or re-trained on the CTAS to ensure proper knowledge and application	No.	%
Every 6month	117	23.1
Annually	207	40.8
every 2 year	123	24.3
It's a one-time training	60	11.8
total	507	100

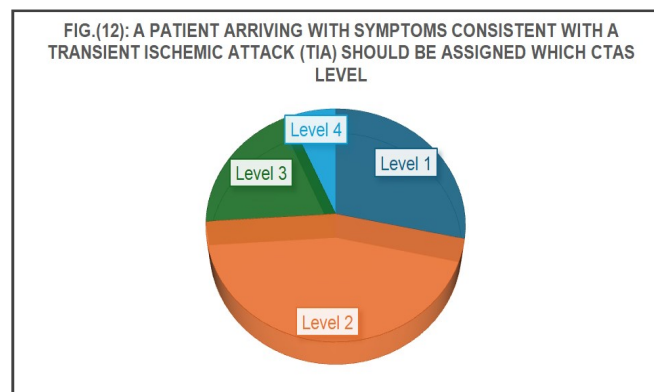


**Table 13. A patient arriving with symptoms consistent with a transient ischemic attack (TIA) should be assigned which CTAS level**

A patient arriving with symptoms consistent with a transient ischemic attack (TIA) should be assigned which CTAS level	No.	%
Level 1	144	28.4
Level 2	231	45.6
Level 3	99	19.5
Level 4	33	6.5
Total	507	100

When a patient presents with symptoms consistent with a transient ischemic attack (TIA), it is important to assign them an appropriate Canadian Triage and Acuity Scale (CTAS) level to ensure prompt and efficient care. According to a survey of healthcare professionals, 28.4% believe that a patient with

symptoms of a TIA should be assigned to CTAS Level 1, indicating the need for immediate attention.



Meanwhile, 45.6% of respondents believe they should be assigned to Level 2, suggesting a higher level of acuity but not requiring immediate intervention. Only 19.5% believe they should be assigned to Level 3, with 6.5% indicating Level 4. Properly triaging patients with TIAs is essential in providing timely and appropriate care for this potentially serious condition (Table13, Fig. 12). Overall, the CTAS system serves as a vital tool in emergency care settings to ensure that patients receive prompt and appropriate treatment based on the urgency of their medical condition.

## DISCUSSION

The results underscored the significance of ongoing training and proficiency in CTAS among healthcare providers to ensure accurate patient triage and efficient emergency care delivery. Regular re-assessment and education on CTAS protocols are essential to maintaining competency and optimizing patient outcomes. Moreover, the study highlighted the pivotal role of CTAS in resource allocation, hospital efficiency, and ultimately, patient safety and treatment effectiveness in emergency settings.

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## List of Abbreviations

- CTAS: Canadian Triage and Acuity Scale
- MI: Myocardial Infarction
- TIA: Transient Ischemic Attack

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**Consent for participation:** Informed consent was obtained from all the participants.

**Ethical approval:** It was a survey not needing IRB approval, but we followed international standards; requested at the beginning of the questionnaire for approval of participation and agreement for sharing of information in our article from each participant, ensuring anonymity and confidentiality.

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