

THE CANADIAN TRIAGE AND ACUITY SCALE Combined Adult/Paediatric Educational Program

PARTICIPANT'S MANUAL

Triage Training Resources

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FOREWARD

Introduction

Since five-level triage was implemented in 1999, the experience gathered both nationally and internationally using CTAS has continued to grow, a body of research has been developed, the CTAS guidelines have been revised, emergency departments have become busier, and the accuracy and reliability of CTAS level assignment is important as CTAS is a good predictor of resource needs. For these reasons, updated training material for new and experienced triage nurses is required.

The goal of CTAS is to support and appropriately assign acuity scores that are valid across the broad scope of emergency department presentations ranging from major to minor trauma, cardiovascular complaints, mental health problems, eye pain, obstetrical emergencies, diffuse paediatric presentations and beyond. To achieve this CTAS is structurally simple, content rich and a significant challenge to commit to memory. The design is conducive to computerization and can offer nurses decision support at the point of care. For those sites without programmable emergency department information systems there is a Power point application, Complaint Oriented Triage (COT) which fully integrates the national CEDIS presenting complaint list with the CTAS modifiers and is freely available to download from the CAEP website at <http://www.caep.ca/template.asp?id=B795164082374289BBD9C1C2BF4B8D32>. This tool can be posted on a computer at triage for nurses to refer to to assist in their decision making and assigning of a triage score. Posters and desk reference tools are also available to purchase for education and support at triage. One final note is that when reporting CTAS data it may be important to define whether or not scores are assigned using computer decision support, computer or paper-based reference materials to support triage accuracy, or entirely by memory. This information may be important when comparing data from site to site.

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Acronyms

The following acronyms are used in this manual:

Acronym	Meaning
ACLS	Advanced Cardiac life Support
AFA	Alternative Funding Arrangements
AMUQ	l'Association des médecins d'urgence du Québec
BP	Blood Pressure
CAEP	Canadian Association of Emergency Physicians
CEDIS	Canadian Emergency Department Information System
CIAMPEDS	Complaint, Immunisation/Isolation, Allergies, Parents Perception/Past History, Events, Diet/Diapers, Symptoms
CIHI	Canadian Institute of Health Informatics
COPD	Chronic Obstructive Pulmonary Disease
CPS	Canadian Paediatric Society
CTAS	Canadian Triage and Acuity Scale
CTAS 1	Resuscitation
CTAS 2	Emergent
CTAS 3	Urgent
CTAS 4	Less Urgent
CTAS 5	Non Urgent
ED	Emergency Department
EMS	Emergency Medical Service
ENAO	Emergency Nurses Association of Ontario
ENPC	Emergency Nursing Paediatric Course
ENT	Ear, Nose, Throat
FEV	Forced Expiratory Volume in 1s
FRI	Febrile Respiratory Illness
GCS	Glasgow Coma Scale
ICD 10	International Classification of Diseases
ILI	Influenza Like Illness
MCC	Motor Cycle Collision
MOI	Mechanism of Injury
MOHLTC	Ministry of Health and Long Term Care
MVC	Motor Vehicle Collision
NACRS	National Ambulatory Care Reporting System
NENA	National Emergency Nurses Affiliation, Inc.
NWG	CTAS National Working Group
OB/GYN	Obstetrics/Gynaecology
OHA	Ontario Hospital Association
O ₂ Sat	Oxygen Saturation
PALS	Paediatric Advanced Life Support
PEFR	Peak Expiratory Flow Rate
RN	Registered Nurse
RR	Respiratory Rate
SRPC	Society of Rural Physicians of Canada
TNCC	Trauma Nursing Core Course

COURSE OVERVIEW

0.1 Course Goals

At the end of this course you will be able to:

- 1) Describe the historical origins and role of triage.
- 2) Review and enhance your patient assessment skills.
- 3) Apply professional standards of emergency nursing practice to triage.
- 4) Introduce and utilize the CEDIS Presenting Complaint List.
- 5) Prioritize patient care based on the Canadian Triage Acuity Scale (CTAS).
- 6) Demonstrate an understanding of patient flow, care processes and communication in the Emergency Department (ED).

0.2 Course Organization

The course is divided into four separate modules dealing with various triage subjects:

- Module 1: Fundamentals of Triage
- Module 2: Using the CTAS
- Module 3: Paediatrics
- Module 4: Special Considerations

0.3 Individual Module Objectives

The learning objectives of the individual modules appear in the following table:

Module	Learning Objectives
1) Fundamentals of Triage	<ul style="list-style-type: none">• Describe the historical basis of triage• Define the purpose and value of triage• Review the unique nature of emergency patients• Describe the professional role and personal characteristics of the triage nurse• Demonstrate an understanding of the nursing skills applied to triage including public relations, interviewing, documentation, critical thinking and communications• Describe the full triage process from patient arrival to transfer to a treatment area• Care for patients in the waiting room
2) Applying CTAS to Adults	<ul style="list-style-type: none">• Define the meaning of the five CTAS levels• Apply the CEDIS list of presenting complaints• Understand 1st and 2nd order modifiers and their application to presenting complaints• Review case scenarios and discuss CTAS decision making• Describe appropriate reassessment times
3) Applying Paediatric CTAS	<ul style="list-style-type: none">• Understand the differences between paediatric and adult triage• Apply the Critical Look: Paediatric Assessment Triangle• Identify presenting complaint and utilize the CIAMPEDS• Interpret vital signs in paediatric patients• Apply paediatric modifiers• Analyze case scenarios
4) Applying CTAS: Special Complaints and Second Order Modifiers	<ul style="list-style-type: none">• Define second order modifiers• Understand importance of second order modifiers and that most apply to both adults and paediatrics• Apply modifiers to select complaints• Recognize potential triage pitfalls• Understand rural CTAS implementation differences and challenges• Analyze case scenarios

MODULE ONE - Fundamentals of Triage

1.1 The Evolution of Triage

“Triage” is the French word for “sort”. It is a process by which patients are prioritized and classified according to the type and urgency of their conditions. Sorting of patients for the purpose of determining treatment priorities originated on World War I battlefields. The method was refined in World War II and the Vietnam War.

The military intent was to provide care to the casualties who could be salvaged for a rapid return to the war front. Combat triage was guided by the maxim “The best for the most with the least by the fewest” (Simoneau, 1985). Critical patients requiring extensive medical resources received delayed medical care (ENA, 1998).

In contrast, the medical intent of triage in hospitals is to assign resources as quickly as possible to those with the highest acuity. The process of triage was introduced to hospitals in the early 1960s to address the increasing number of emergency visits following the introduction of Medicare and to deal with patients with non-urgent conditions. Initially a variety of triage methods were used with three-level triage (emergent, urgent, non-urgent/deferrable) the most common. As Emergency Department patient volumes and acuity continued to increase in the 1980s and 90s interest in ED triage started to grow both nationally and internationally. Fitzgerald and Jelinek’s work in Australia led to the development of the Australian National Triage Scale. Beveridge studied their work and developed a scale modified for the Canadian context and first introduced the Canadian Association of Emergency Physicians (CAEP) five-level triage and acuity scale in 1995 which generated a national interest in a standardized triage scale.

The CAEP National Working Group (NWG) on triage was then established with representation from CAEP, the National Emergency Nurses Affiliation (NENA), AMUQ (emergency physicians association in the province of Quebec), and the Society of Rural Physicians of Canada. The NWG reviewed Beveridge’s work and through a series of consensus meetings agreed to support the Canadian Triage and Acuity Scale (CTAS) as the national standard. CAEP, AMUQ and NENA endorsed this in May 1998 and the CTAS Implementation Guidelines were published in October 1999. A number of studies on CTAS interrater reliability have been published suggesting good to excellent agreement. Validity studies have indicated that CTAS can be effectively used as one measure of ED resource needs. In 2001 through the work of the CTAS NWG and Canadian Paediatric Society (CPS) the Paediatric CTAS Implementation Guidelines were published, followed in 2004 by the Revised Adult CTAS Guidelines. In 2008 the CEDIS presenting complaint list was updated and complemented by a further revision of the Adult CTAS Guidelines, as well as, a revision of the Paediatric CTAS Guidelines. The full publications are available at <http://www.caep.ca/template.asp?id=b795164082374289bbd9c1c2bf4b8d32>

1.2 What is Triage?

The National Emergency Nurses’ Affiliation’s definition of triage is “a sorting process utilizing critical thinking in which an experienced Registered Nurse assesses patients quickly upon their arrival at an emergency setting to:

1. assess and determine severity of presenting problems
2. process patients into a triage category
3. determine access to appropriate treatment
4. effectively and efficiently assign appropriate human health resources”

Source: NENA Position Statement A-1-4, 2002

To make a decision about the severity of a patient’s condition, the triage nurse collects subjective and objective information and history on all patients presenting to the emergency department. Each patient is assigned an acuity score consistent with guidelines provided in the Canadian Triage and Acuity Scale (CTAS).

It is important to remember that triage is a process, not a number on a scale. Processes involve people, communication and resources. Processes need to be managed.

The effect of a series of triage decisions is to identify those that need to be seen first and create a priority list by acuity level (or risk) of those patients waiting for treatment. Those with more acute conditions are seen first, in order to reduce the risk that their condition may deteriorate.

The Rationale for the development of CTAS in Canada was to develop a national standard for triage, improve patient safety, increase triage reliability and validity and develop benchmarks and performance indicators.

Triage has some significant benefits:

1. Ensures that the critically ill or injured receive attention before the less ill or injured patients
2. Establishes acuity based on the CTAS guidelines and helps inform the resources required (e.g. the type of treatment room).
3. Identifies reassessment frequency.
4. Enables effective utilization of space and resources
5. A timely approach alleviates the anxieties of the patient and/or their caregiver(s) knowing that they are in the system and can improve lines of communication.

Provides the opportunity for surveillance of predictable conditions (.e.g. Influenza, Norwalk virus, falls in the elderly, paediatric injury etc.) as well as being alert to the possible presentation of victims of a pandemic or bioterror event.

1.3 Avoiding Triage as “Access Block”

It is important to understand both the importance and limitations of triage in the face of severe overcrowding. It becomes even more critical to identify the sickest and those patients at greatest risk for a bad outcome and to prioritize them to be seen. At the same time, a majority of the other patients waiting to receive emergency care are delayed well beyond the time recommendation of the CTAS NWG.

The reason for this wait time is often inappropriately blamed on CTAS. In fact it has nothing to do with CTAS and everything to do with system capacity and process efficiency. This needs to be clear to patients, colleagues, administrators and government officials alike. CTAS neither improves nor worsens ED overcrowding. At best it offers the failing system an imperfect safety net to minimize waiting room morbidity and mortality. The solution to protracted wait times is to solve ED throughput and output problems. If delays in care occur ED staffing and department utilization will need to be reviewed and optimized.

Lean processing to improve ED efficiencies is one such strategy that is being broadly adopted. One of the goals of this process is to shorten the time from arrival to assessment by an Emergency physician by ensuring patients not requiring stretcher care have alternate treatment spaces to wait in. The triage process should not become a block, or significant delay, but rather a way of “streaming” patients to the most appropriate care area. The goal for all parts of the health care continuum is ‘right patient, right place, right time, with right care giver’.

1.4 Triage Overcrowding

AVOID TRIAGE DRIFT (the urge to triage patients based on their wait times; either uptriaging a CTAS 5 to a 4 because a wait may be too long or downtriaging a CTAS 2 to a 3 because the patient will need to be held in the waiting room).

Be sure to always triage the patient and not the environment of the ED. Experience has shown that when the ED is overcrowded, there is a tendency to assign a lower acuity scale to the more acute patients and higher to the least acute (triage drift). The safety of the person incorrectly assigned to a lower level may be compromised. In addition the validity of triage data as a measure of ED case mix for comparison is compromised.

1.5 Emergency Patients are Unique

Emergency patients have many characteristics that differ from patients in other hospital settings:

Their arrival is unscheduled

Emergency patients, and their caregivers often experience some degree of anxiety and distress in an unfamiliar environment over which they have little control

Many critically ill or injured patients can arrive simultaneously and the triage nurse is challenged to decide who should be assessed first

Care is episodic (acute incident management with no ongoing care expectations)

The patients and the care providers are unknown to each other and must develop a rapport within a short period of time.

Patients arrive experiencing symptoms, not a diagnosis and the full range of their health issues is not known

The conditions seen may combine medical, surgical, mental health or social emergencies

The patients encompass all ages, cultures, and ethnicities requiring the triage nurse to have knowledge of the impact of these factors on presentations and patient and family expectations

An number of patients have to access emergency departments for primary health care due to lack of community health resources

Notes:

1.6 The Role of the Triage Nurse

The role of the triage nurse has several important components:

Assessing Patients

The triage nurse establishes rapport with the patient in order to collect the information necessary to make an informed decision about their symptoms and acuity.

Communicating with the Public

The triage nurse is usually the public face of the emergency department, and often the entire hospital. The triage nurse is usually the only health professional in contact with patients in the waiting room. Their attitude and behavior is on public display and requires great tact and patience.

Communicating with Health Professionals

The triage nurse collaborates with various members of the health care team – the charge nurse or primary nurses, emergency physicians, paramedics, nurse practitioners, physician consultants, security staff, registration clerks and others—to facilitate the movement of patients into treatment.

Assigning Resources

Based on each patient's condition and ED capacity, the triage nurse assigns them to a treatment area or to a waiting area. Triage requires coordination between the charge nurse and emergency physicians in order to make efficient use of treatment resources.

Initiating treatment protocols/first aid measures

Individual facilities may have medical directives/treatment protocols for the triage nurse to provide symptom relief or initiate limited investigations.

Monitoring and Reassessing

It is the responsibility of the triage nurse to monitor and reassess the waiting room patients to identify changing conditions.

Participating in patient flow

The triage nurse collaborates with the primary care team to coordinate patient flow.

Documenting

The Triage Nurse documents all relevant findings in accordance with hospital or provincial regulations. Documentation requirements must never delay treatment in critically ill or injured patients. In these circumstances documentation is completed after appropriate patient care has been assured.

1.7 Characteristics of the Triage Nurse

The triage nurse requires emergency nursing experience (preferably 2 years or more) and be orientated to the role after having completed Canadian Triage and Acuity Scale formal training. A positive professional attitude is essential to be an effective triage nurse.

Successful triage nurses have well-developed personal traits, strong cognitive characteristics and a range of behavioral characteristics that make them effective.

Personal traits include the following:

- Flexibility
- Autonomy
- Good communication skills
- Assertiveness
- Patience
- Compassion
- Willingness to listen and learn

Cognitive characteristics required by triage nurses include:

- A diverse knowledge base
- Knowing when not to act
- Critical thinking
- Ability to make decisions quickly
- Ability to prioritize

Behavioral characteristics required include:

- Being a patient advocate
- Working well under pressure
- Being organized
- Improvising as needed
- Using intuition
- Displaying confidence in judgment
- Trusting or relying on peers

For Personal Reflection

Use the chart below to identify your strengths and weaknesses under each category of characteristics:

	My Strong Characteristics	Areas Needing Work
Personal Traits		
Cognitive Characteristics		
Behavioral Characteristics		

Identify three specific action steps you will take in the next three months to address the areas you identified as needing work:

1.

2.

3.

1.8 Skills of the Triage Nurse

In addition to the personal characteristics described in the previous section, triage nurses need to be proficient in a number of skill sets described below.

Public Relations Skills

A patient's perception of a visit to an Emergency Department can reflect on the department, the hospital and the health care system in general. Studies have shown that there is a correlation between the initial triage experience and satisfaction with the entire visit to the ED. The triage nurse needs to display both confidence as a professional and concern for the individual. The rapport established will facilitate the exchange of information and help allay fears.

Interviewing Skills

The triage interview collects information about the patient's reason for ED visit, health history, allergies, medications, etc. The patient's "story" about his/her concern is essential in assessing the individual's acuity level.

Some things to keep in mind when conducting triage interviews:

- Focus on the information needed
- Encourage dialogue through eye contact and facial expression
- Listen for key words
- Use open-ended questions to elicit details about a patient's symptoms
- Use closed-ended questions to prompt for specifics
- Use probing questions to clarify information - "Can you explain what you mean when you say you feel unwell?"
- Summarize and close the discussion

Most of all, you should listen with empathy:

Be non-judgmental

Actively listen to what the person is really saying

Use silence and restatement to clarify message

Be particularly sensitive to the patient's and family's culture. Perceptions of a patient's response to pain, for example, may vary from culture to culture.

Critical Thinking Skills

Critical thinking includes the activities of organizing and analyzing information, recognizing patterns, and gathering evidence to support the conclusions drawn. (Practice Review Guide 2003, College of Nurses of Ontario). Triage nurses need to apply critical thinking when assigning an appropriate CTAS level within a brief and concentrated time frame.

Communication Skills

An emergency is any situation that cannot be resolved by the patient or family because they lack the resources or knowledge to do so. A crisis occurs when there is an imbalance between the magnitude of the problem and the immediate resources available to deal with it.

Documentation

The ability to provide clear, complete and accurate documentation is an important triage nursing skill - all information used to make a decision is documented. The data that should be documented to substantiate the triage decision are the following:

Documentation

- Date and Time
- Patient Name
- Age
- Presenting Complaint (CEDIS)
- Subjective Assessment
- Objective Assessment
 - Modifiers (1st order):
 - Vital Signs
 - Pain Scale
 - Bleeding Disorder
 - Mechanism of Injury
 - Other Modifiers (2nd order)
- CTAS Level
- Triage Interventions
- Disposition
- Triage Nurse – ID
- Reassessments

Allergies/medications, immunization history, and relevant past history should be documented by the primary nurse. Depending on institutional work processes and policies the collection of this and additional data may be assigned to the triage nurse. It is important to recognize that this work is not required to assign a CTAS score and should not be required of the triage nurse if it leads to delays in patient access to care.

Notes:

1.9 The Process of Triage

The triage process covered in this course follows a number of steps.

1. Patient arrival and “critical first look”.
2. Screening for infectious diseases.
3. Interviewing and assessing the patient to ascertain the reason for visit (presenting complaint) and triage acuity level. This involves a subjective and objective assessment plus application of appropriate modifiers.
4. Making the triage decision and assign an acuity level.
5. Assigning the patient to a treatment or waiting area based on acuity and availability of resources.
6. Initiating symptom relief or other medical directives for patients assigned to the waiting area where appropriate.
7. Reassessing waiting area patients as per CTAS guidelines whenever possible.

Patient’s Arrival

Research in Ontario in 2004 showed that province-wide 12% of ED patients arrived by ambulance and 88% arrived by other means of transport (known as walk-ins). For individual EDs across Canada ambulance arrivals may be as low as 2-3% for lower acuity sites or as high as 30-40% for some quaternary care sites.

Triage nurses have a good understanding of the frequency of each mode of arrival at their site. The acuity of both walk-in and ambulance patients encompass all triage levels. Do not make assumptions about acuity based on the means of transport. Listen carefully to the pre-hospital report and take into account all information from the EMS staff, however, the triage nurse is expected to personally assess the patient to make an independent evaluation of their condition and level of acuity.

Critical Look

As soon as a patient arrives in the ED, the triage nurse should conduct an across-the-room “critical first look” scan by applying a quick “ABCD” check or the Pediatric Assessment Triangle:

- A** – Airway
- B** – Breathing
- C** – Circulation
- D** – Disability (neurological)

The across-the-room scan should take about three to five seconds. Techniques for doing this are covered in Modules 2 and 3.

If the critical look identifies an immediate need for intervention, the triage nurse directs the patient to the appropriate treatment area, then documents the first look and other relevant information. Never delay the start of required critical treatment.

Infection Control

Many hospitals across Canada have directed that all patients must be screened for febrile respiratory illnesses (FRI) and influenza like illness (ILI). This may be accomplished through verbal enquiry (the preferred method) or by patient self-report. If positive, protective measures must be implemented using the latest information available from public health bulletins, MOHLTC notices, Health Canada, the Centre for Disease Control, World Health Organization, etc.

Depending on the acuity of the patient, the pre-screen for Infection Control may be simultaneous with the critical look and transfer to a treatment area.

Be sure to follow your provincial or institutional policies for infectious disease screening.

Subjective Assessment

Subjective assessment is the patient's report of their symptoms, injury or illness. While obtaining this assessment, it is important to establish rapport with the patient. Explore the history of the presenting complaint and always clarify the language and descriptions used by the patient (e.g. "How much vomiting is a lot of vomiting?").

Exercise

Give examples of questions that could be asked to gain information on the following common presenting complaints:

Headache:

Chest Pain:

Shortness of Breath:

Unwell:

Abdominal Pain:

Back Pain:

Musculoskeletal:

Others:

Objective Assessment

The objective assessment helps to determine patient acuity levels by drawing on observable indicators such as wounds, rashes, bleeding, cough, etc. and checking and recording vital signs, pain severity, mechanism of injury and other modifiers such as blood glucose.

The detailed “head to toe” assessment is done later by the primary nurse in the privacy of the treatment area.

Selecting Presenting Complaint (CEDIS)

The presenting complaint is ultimately nurse driven (although often matches the patient’s complaint). When there are multiple complaints, or conflicting complaints are noted, the complaint that will result in the highest appropriate CTAS score is the one to be used.

The Triage Decision

Based on the critical look and the subjective and objective assessments, the triage nurse will assign an acuity level that addresses the question:

“What is this patient’s priority?”

CTAS levels place patients into categories based on acuity. There may be more than one patient waiting at any given CTAS level. Therefore, within each level, prioritizing the patient with the greatest urgency for treatment bed placement/health care provider relies on triage nurse judgment.

Line-ups

The goal is to triage patients within 10 to 15 minutes of arrival. If a line-up forms at triage, be sure to scan the line for critically ill or injured patients and prioritize them accordingly. Stay calm, and request help when required.

Patients in the Waiting Room

Communicate next steps to the patient and caregivers. Advise each patient/caregiver to notify the triage nurse if the condition changes.

Over the past several years ED wait times have been increasing related to increasing patient number and complexity and the boarding of admitted patients. Depending upon hospital and site policies and medical directives, the triage nurse may need to:

- Initiate diagnostics
- Provide symptom relief
- Dispense analgesics
- Continue care of patients arriving by ambulance

If the numbers of patients becomes overwhelming, it is important to call for assistance.

For Consideration

What would you as a triage nurse do if you have five Level 3 patients waiting?

Notes:

Reassessments in Waiting Areas

All waiting patients should be reassessed within the following time frames:

Level 1 – Continuous nursing care

Level 4 – Every 60 minutes

Level 2 – Every 15 minutes

Level 5 – Every 120 minutes

Level 3 – Every 30 Minutes

The extent of the reassessment depends upon the presenting complaint, the initial triage level and any changes identified by the patient. The triage nurse documents the reassessment findings and any changes in the patient's acuity score, however, the initial triage score is never changed.

With each reassessment the nurse must decide: "How long can this patient safely wait?"

Notes:

MODULE TWO - Applying CTAS to Adults

2.1 The Triage Process

The triage process is a four step rapid evaluation and decision making process. The screening 5th step (Infection Control) is also included. Most patients can be assigned a triage level after the Critical Look, Presenting Complaint (including the history), and measurement of vital signs. It is appropriate to limit the assessment depending on the severity of the initial impression. In a minority of patients a more detailed history and examination may be necessary to assign the triage level.

2.2 The CTAS Levels

The five levels and urgencies of the Canadian Triage and Acuity Scale are:

Level 1 - Resuscitation
Level 2 - Emergent
Level 3 - Urgent
Level 4 – Less Urgent
Level 5 – Non-Urgent

CTAS Level 1 – Resuscitation

Level 1 applies when there are “conditions that are threats to life or limb (or imminent risk of deterioration) requiring aggressive interventions”. Level 1 patients present with very obvious signs of distress and unstable vital signs. They are at immediate risk of deterioration requiring immediate aggressive interventions. They do not need further assessment. Examples include:

- Cardiac arrest
- Respiratory arrest
- Major trauma (in shock)
- Shortness of breath (severe respiratory distress)
- Altered level of consciousness (unconscious, GCS 3-9)

CTAS Level 1 Case Example: CEDIS Presenting Complaint - Cardiac Arrest: A 68 year old female walks into the emergency department and reports to the triage nurse that she has been experiencing severe chest pain and shortness of breath. Suddenly, the patient collapses to the floor And vital signs are absent.

Notes:

CTAS Level 2 – Emergent

Level 2 applies when there are “conditions that are a potential threat to life, limb or function, requiring rapid medical intervention” by physician or medical directive. Examples include:

- Shortness of breath (moderate respiratory distress)
- Vomiting blood (dizzy on sitting up)
- Hypertension (SBP >220 or DBP >130 with symptoms)
- Altered level of consciousness (GCS 10-13)
- Fever (temperature > 38C, looks septic with 3 positive SIRS criteria)
- Chest pain, cardiac features
- Chest pain, non cardiac features (other significant chest pain ripping or tearing)
- Abdominal pain (severe pain 8/10)
- Headache (sudden, severe, worst ever)
- Major trauma – blunt, no obvious injury (pedestrian struck by car travelling at speed)

It is important to provide rapid medical attention as the Level 2 patient can quickly deteriorate and require resuscitation.

CTAS Level 2 Case Example: CEDIS Presenting Complaint – Chest Pain, cardiac features: A 52 year old male arrives in the ED reporting a 1-hour history of heavy, central substernal chest pain which has now resolved. Vital signs: RR 20, HR 68, BP 132/76

Notes:

CTAS Level 3 – Urgent

Level 3 applies when there are “conditions that could potentially progress to a serious problem requiring emergency intervention. May be associated with significant discomfort or affect ability to function at work or in activities of daily living”. Vital signs are usually normal or at the upper and lower ends of the normal range. These patients have a clear potential for deterioration but are often assigned to the ED waiting room with our overcrowding problems. Examples include:

- Shortness of breath (mild respiratory distress)
- Hypertension (SBP >220 or DBP >130 with no symptoms)
- Vomiting &/or nausea (mild dehydration)
- Abdominal pain (moderate pain 4-7/10)
- Headache (moderate pain 4-7/10)
- Diarrhea (uncontrolled bloody diarrhea)

CTAS Level 3 Case Example: CEDIS Presenting Complaint – Abdominal Pain: A 62-year-old male presents to the ED complaining of left lower quadrant abdominal pain. He indicates the pain is 5/10 and has been getting worse over the past 12 hours. His vital signs are stable but his HR is 100/min and temp 37.6C.

Notes:

CTAS Level 4 – Less Urgent

Level 4 applies when there are “conditions that relate to patient age, distress, or potential for deterioration that would benefit from intervention or reassurance within one or two hours”. Examples include:

- Confusion (chronic, no change from usual state)
- UTI complaints/symptoms (mild dysuria)
- Constipation (mild pain <4/10)

CTAS Level 4 Case Example: CEDIS Presenting Complaint - Laceration: A 35 year old male warehouse worker presents with a 3 cm laceration to his right palm from a utility knife. There is no active bleeding, but requires sutures. Pain is 4/10 and vital signs are normal.

Notes:

CTAS Level 5 – Non-Urgent

Level 5 applies when there are “conditions that may be acute but non-urgent as well as conditions which may be part of a chronic problem with or without evidence of deterioration. The investigation or interventions for some of these illnesses or injuries could be delayed or even referred to other areas of the hospital or health care system”. Examples include:

- Diarrhea (mild, no dehydration)
- Minor bites (+/- mild acute peripheral pain)
- Dressing change (uncomplicated)
- Medication request

CTAS Level 5 Case Example: CEDIS Presenting Complaint – Dressing change- A 34 year old otherwise healthy patient presents requesting a dressing change. No other issues identified.

Notes:

CEDIS Categories	
Cardiovascular	OB—GYN
ENT—Ears	Ophthalmology
ENT—Mouth, Throat, Neck.	Orthopaedic
ENT—Nose	Respiratory
Environmental	Skin
Gastrointestinal	Substance Misuse
Genitourinary	Trauma
Mental Health & Psychosocial Issues	General and Minor
Neurologic	

A detailed list of the CEDIS presenting complaints by category, appears in Appendix B. Note that the examples given previously for each of the CTAS levels are presenting complaints from the CEDIS list.

Using the CEDIS list, identify the most appropriate complaint for the following patient presentations:

Presenting Complaint	CEDIS Presenting Complaint
1. A 75-year old male complains his strength and ability to ambulate has declined and he is sleeping continuously.	
2. A 42-year old male found to be unresponsive on the floor. He is in moderate respiratory distress and his skin is pale, cool and moist.	
3. An 18-year old female found sitting in the garage with the door closed and the car engine running. She will not make eye contact and will not answer the triage nurses questions but is otherwise cooperative.	
4. Patient returning to the ED for MRI test.	
5. A 68-year old female presents with severe chest pain and shortness of breath for the past 4 hours.	
6. A 28-year old female, 8 weeks pregnant, presents with vaginal bleeding and abdominal pain.	
7. A 30-year-old female was involved in a single vehicle MVC. She complains of a sore neck and vague abdominal pain. No loss of consciousness and she is awake and talking.	
8. A 66-year old woman complained of a sharp pain in her head before collapsing. She is brought in seizing.	
9. A 17-year old female is itchy all over and complaining of a tight throat but is able to swallow. Her breathing is also tight and she is feeling dizzy. Her face is swollen and covered with a red, blotchy rash.	
10. A 24-year old female is complaining of abdominal pain and reports she had unprotected sexual intercourse 2 months ago.	

2.3 Determining the CTAS level

Selecting the CEDIS presenting complaint, together with information gained from the critical look, plus additional information gathered from more stable patients, allows the triage nurse to select a relevant modifier(s), to assign the most appropriate CTAS level.

In some cases, the presenting complaint and the CTAS level can be determined quickly following the 3-5 second critical first look. This is common for high acuity patients (CTAS 1, Resuscitation and CTAS 2 Emergent) who arrive with presentations of serious, life threatening illness or injury. For example the patient who is actively seizing at triage is CTAS 1 and the patient with chest pain that sounds cardiac is Level 2 (assuming they are not in shock or in severe respiratory distress). No further information is required for triage decision-making.

In most cases, more information is needed to determine the CTAS level. This information is systematically organized as first and second order modifiers.

Modifiers provide additional acuity information to the presenting complaint and help assign the appropriate CTAS level.

First Order Modifiers are broadly applicable to a majority of the CEDIS complaints and are prioritized as follows:

Vital Signs modifiers supported by the “critical look” when appropriate.

Respiratory Distress.....	Airway
.....	Breathing
Hemodynamic Status.....	Circulation
Level of Consciousness.....	Disability
Temperature	

Other modifiers are then considered and applied as indicated.

Pain Score
Bleeding Disorder
Mechanism of Injury

Second Order Modifiers are specific to a limited number of complaints and are generally applied after deciding upon the presenting complaint and after ensuring that First Order Modifiers have not already assigned the patient a higher acuity score (type 1). For some complaints, however, second order modifiers are the prime driver of acuity as first order modifiers are not applicable (type 2)

Selected Second Order Modifiers will be covered in detail in Module 4

When modifiers are applied, the CEDIS list expands to over 650 variations with related CTAS levels. The goal is to provide a common language for documenting the chief complaint.

Notes:

2.4 First Order Modifiers

First order modifiers include vital sign (respiratory distress, hemodynamic stability, level of consciousness and temperature) modifiers, as well as other modifiers including pain severity, bleeding disorder and mechanism of injury. Vital sign modifiers best reflect the nurse's impression obtained during the "critical first look" and should be considered and applied first to assist in determining patient acuity.

2.4.1 Vital Sign Modifiers

Respiratory Distress

While collecting the history, the triage nurse observes the patient's breathing to evaluate respiratory effort, respiratory rate, depth of respirations, use of accessory muscles, indrawing, skin colour and the position the patient assumes to assist with respiratory effort. The nurse also listens for airway and breathing sounds such as stridor, cough, wheezes and crackles. The degree of respiratory distress indicates a CTAS level as shown in the table. Using O₂ Sat measurements to help differentiate level of respiratory distress assumes an accurate reading and an assumption of normal O₂ Sats when healthy. For patients with chronic respiratory disease rely more on other signs of respiratory distress.

Level of Distress	O ₂ Saturation	PEFR Predicted	CTAS Level
Severe: Fatigue from excessive work of breathing, cyanosis, single-word speech, unable to speak, upper airway obstruction, lethargic or confused, intubated or requiring assisted breathing.	<90%		1
Moderate: Increased work of breathing, speaking phrases or clipped sentences, significant or worsening stridor but airway protected.	<92%	<40%	2
Mild: Dyspnea, tachypnea, shortness of breath on exertion, no obvious increased work of breathing, able to speak in sentences, stridor without any obvious airway obstruction.	92% to 94%	40-60%	3
None	>94%		4 or 5

Spirometry should not delay treatment or assessment, however, subjective assessment of asthmatics usually underestimates the level of severity. If peak expiratory flow rate (PEFR) is used at triage in your hospital, the corresponding measures and acuity level are (in adults) and should trigger an appropriate intervention

You should:

- Repeat PEFR.
- Note that neither PEFR or FEV are useful in patients with COPD
- Use race and gender specific tables
- Use baseline PEFR to calculate percentage predicted.

Adapted from: Murray, M., Bullard, M., Grafstein, E. & CEDIS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. Can J Emerg Med 2004; 6(6); 421-7.

Hemodynamic Stability

The patient's perfusion status is assessed while taking the history. Skin colour, temperature and moisture are helpful signs to monitor to better differentiate shock, hypoperfusion and hemodynamic compromise. One effective way to evaluate perfusion is to take the patient's radial pulse. The rate and quality of the pulse can be used to assess cardiac output. The temperature of the skin and the presence/absence of diaphoresis – warm and dry versus cool and moist can assist the nurse in determining the patient's hemodynamic status. The colour and moisture of skin, eyes and mucous membranes can assist in the evaluation of hydration and perfusion.

Finally, heart rate and blood pressure readings are collected to quantify the assessment of hemodynamic status. In order to give a patient a CTAS score of 4 or 5, blood pressure and heart rate must be within normal limits for age. A CTAS score of 3 means the patient's blood pressure and heart rate are within normal limits but are at the high or low limits of normal with no apparent signs of hemodynamic compromise.

The goal of the triage nurse is to recognize serious and life-threatening signs of altered perfusion as described in the following table.

Hemodynamic Status	CTAS Level
<u>Shock</u> : Evidence of severe end-organ hypoperfusion ; weak or thready pulse, hypotension, significant tachycardia or bradycardia, decreased level of consciousness. Could also appear as flushed, febrile, toxic, as in septic shock.	1
<u>Hemodynamic compromise</u> : Evidence of borderline perfusion ; unexplained tachycardia, postural hypotension (by history), or suspected hypotension (lower than normal blood pressure or expected blood pressure for a given patient)	2
Vital signs at the upper and lower limits of normal as they relate to the presenting complaint, especially if they differ from the patient's normal values	3
Normal vital signs	4 & 5

Adapted from: Murray, M., Bullard, M., Grafstein, E. & CEDIS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. Can J Emerg Med 2004; 6(6); 421-7.

Notes:

Level of Consciousness

Level of consciousness assessment at triage provides important information about neurological function. Quantifying neurological function at triage is easily done using the Glasgow Coma Scale (GCS) Score that was developed for and is appropriately applied to patients presenting with a suspected head injury. Trauma patients at triage are categorized as:

Level 1 - unconscious GCS 3-9

Level 2 - altered GCS 10-13

Level 3 - normal GCS 14-15.

Patients with dementia, cognitive impairment or chronic neurologic dysfunction make the use of the score difficult. Attempt to determine baseline function and determine if there is any change from the patient's norm. See Appendix C for a refresher on how to apply the GCS.

Status – Level of Consciousness	GCS	CTAS Level
Unconscious: unable to protect airway, continuous seizure or progressive deterioration in level of consciousness	3 - 9	1
Altered level of consciousness: loss of orientation to person place or time; new impairment of recent memory; new onset confusion; agitation	10 - 13	2
Normal: other modifiers are used to define the CTAS level	14 - 15	3, 4 or 5

Adapted from: Murray, M., Bullard, M., Grafstein, E. & CEDIS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. Can J Emerg Med 2004; 6(6); 421-7.

Temperature

Fever is defined as a temperature of 38°C in adult patients over 16 years of age. An elevated temperature must be assessed within the context of the presenting complaint. For example patients who are immune compromised are more likely to become septic.

Look for signs of sepsis in patients with a fever. To assist nurses in identifying patients with sepsis and severe sepsis, the signs of the systemic inflammatory response (SIRS) have been incorporated into the fever modifiers definitions (see table below).

Definitions:

1. SIRS is the systemic inflammatory response to a variety of severe clinical insults. The response is manifested by 2 or more of the following criteria: temperature $>38^{\circ}\text{C}$ or $<36^{\circ}\text{C}$; heart rate >90 beats/minute; respiratory rate >20 breaths/minute or $\text{PaCO}_2 <32$ torr (<4.3 kPa); WBC >12000 cells/ mm^3 , <4000 cells/ mm^3 or $>10\%$ immature (band) forms.
2. Sepsis is defined as the systemic response to infection, manifested by 2 or more of the SIRS criteria as a result of infection.
3. Severe sepsis is defined as sepsis associated with organ dysfunction, hypoperfusion or hypotension; hypoperfusion and perfusion abnormalities may include, but are not limited to, lactic acidosis, oliguria or an acute alteration in mental status.

Fever $>38^{\circ}\text{C}$ (age >17)	CTAS Level
Immunocompromised – neutropenia (or suspected), chemotherapy or on immunosuppressive drugs including steroids.	2
Looks septic – has 3 positive SIRS criteria or hemodynamic compromise, moderate respiratory distress or altered level of consciousness.	2
Looks unwell – has 1 or 2 positive SIRS criteria but appears ill-looking (flushed, lethargic, anxious or agitated).	3
Looks well – has fever as the only positive SIRS criteria and appears comfortable and in no distress.	4

Adapted from: Bullard, M., Unger B, Spence J, Grafstein E. Revisions to the Canadian Emergency Department Triage and Acuity Scale (CTAS) Adult Guidelines. Can J Emerg Med 2008; 10(2); 136-142.

Any patient with a suspected infectious process presenting with moderate respiratory distress, hemodynamic compromise, or altered level of consciousness should automatically be assigned a triage level of 2; and given the evidence of circulatory, respiratory or CNS dysfunction should be considered *severe sepsis* and treatment expedited accordingly. For patients not meeting those criteria, the only SIRS criteria generally available at triage are: temperature <36 or $>38^{\circ}\text{C}$, heart rate >90 beats/minute, and respiratory rate >20 breaths/minute. Patients with all 3 positive SIRS criteria **plus** evidence of an infection and appear unwell should be assigned a level 2 and given the same expedited care. Patients with <3 positive SIRS criteria positive but appear unwell should be assigned a level 3. Patients who appear well and whose only SIRS criteria is a fever, or documented fever prior to presenting to the ED, are a level 4.

Notes:

2.4.2 Other Modifiers

Pain Severity

A pain assessment is an important determinant of triage acuity after first ensuring that abnormal vital signs have not already assigned the patient a level 1 or level 2 acuity score. To assist in the prompt identification of symptoms of serious illness/injury and to help effectively control symptoms, pain severity is measured. For the purposes of triage, pain is categorized by its severity, location and duration.

Central pain originates within a body cavity (head, chest, abdomen) or organ (eye, testicle, deep soft tissue compartment) and may be associated with life- or limb-threatening conditions. Peripheral pain originates in the skin, soft tissues, axial skeleton or superficial organs where dangerous diagnoses are less likely to be missed.

**The one caveat is: "If a patient presents with pain in a site traditionally considered peripheral pain but the nurse suspects a life or limb threatening condition (e.g. necrotizing fasciitis) then the pain should be scored as central pain".

Acute pain is a new onset pain of < one month (Thienhaus, 2002) and is more likely to prove dangerous (prior to a diagnostic work-up) than chronic pain.

Chronic pain is a well-recognized long-standing or frequently recurring pain syndrome.

If the patient complains of acute or chronic "severe" pain with accompanying subjective and objective signs, than triage as "acute".

The decision to assign a CTAS code based on pain is a combination of:

- The patient's report of pain severity on a 10-point Likert scale – mild, moderate, severe
- The location/risk potential of the pain - central or peripheral
- The duration/pattern of the pain- acute or chronic
- The nurse's subjective assessment of the patient's response to pain (i.e. how distressed the patient looks) and the patient's physiologic response to pain.

You must record both the patient's report of the pain and your final assessment of the pain severity. Note that many patients will report their pain as mild to moderate but you observe a higher level of distress. Your assessment of the response to pain is key.

Pain Severity & Pain Score*	Location of Pain	Acute v. Chronic Pain	CTAS Level
Severe Score 8-10	Central	Acute Chronic	2 3
	Peripheral	Acute Chronic	3 4
Moderate Score 4-7	Central	Acute Chronic	3 4
	Peripheral	Acute Chronic	4 5

Pain Severity & Pain Score*	Location of Pain	Acute v. Chronic Pain	CTAS Level
Mild Score 1-3	Central	Acute Chronic	4 5
	Peripheral	Acute Chronic	5 5

Adapted from: Murray, M., Bullard, M., Grafstein, E. & CEDIS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. Can J Emerg Med 2004; 6(6); 421-7

Bleeding Disorder

Patients with bleeding disorders who present with major and moderate bleeds require rapid factor replacement. This includes patients with congenital bleeding disorders and significant factor deficiencies who usually require rapid factor replacement. This category also includes patients taking anticoagulants or suffering severe liver disease with prolonged prothrombin or partial thromboplastin times who are also at risk for massive bleeding and may require rapid intervention providing factor takes precedence over investigations.

Modifiers have been developed with input from the Canadian Hemophilia Society.

Examples of Life or Limb Threatening Vs Moderate/Minor bleeds are listed in the table below.

LIFE or LIMB THREATENING BLEEDS	MODERATE/MINOR BLEEDS
<i>CTAS Level 2</i>	<i>CTAS Level 3</i>
Head (intracranial) and neck	Nose (epistaxis)
Chest, abdomen, pelvis, spine	Mouth (including gums)
Massive vaginal hemorrhage	Joints (hemarthroses)
Iliopsoas muscle and hip	Menorrhagia
Extremity muscle compartments	Abrasions and superficial lacerations
Fractures or dislocations	
Deep lacerations	
Any uncontrolled bleeding	

Adapted from: Bullard, M., Unger B, Spence J, Grafstein E. Revisions to the Canadian Emergency Department Triage and Acuity Scale (CTAS) adult guidelines. Can J Emerg Med 2008; 10(2);136-142.

While the ED patient population with congenital or acquired bleeding disorders is limited these modifiers are applicable to all CEDIS trauma complaints plus any non trauma complaint that deals with bleeding, thus the decision to consider these 1st order modifiers

The goal of identifying bleeding disorder patients is to provide immediate factor replacement for major bleeds (goal < 30 minutes) and to initiate rapid factor replacement for minor or moderate bleeds (goal < 1 hour).

Many of these patients may carry *Factor First* cards [for hemophiliacs and patients with Von Willebrand's disease] and Treat First cards [for patients with rare bleeding disorders] (accessible at: [www.hemophilia.ca/emergency_\[English\]](http://www.hemophilia.ca/emergency_[English]) and [www.hemophilia.ca/emergency_\[French\]](http://www.hemophilia.ca/emergency_[French])) that include personalized treatment recommendations.

The classification and targets for infusion of prothrombin complex concentrate or fresh frozen plasma for patients with acquired bleeding disorders are the same. Only patients with dangerously high INRs or PTTs present the same bleeding risk as Hemophiliacs. For them the treatment is prothrombin complex concentrate (PCC), fresh frozen plasma and/or vitamin K (to be decided on by the physician).

Mechanism of Injury

You must assess and document the mechanism of injury (MOI) for all patients with injuries/symptoms/complaints related to trauma. This applies to the spectrum of trauma from high impact motor vehicle collisions to minor trauma injuries such as an ankle sprain. This information assists the triage nurse to determine “how much energy or force” was applied to the patient’s body structures and organs.

The higher the energy force (i.e. roll over MVC, fall from greater than 6 meters), the more severe the injuries are likely to be.

For patients who present to the emergency department following trauma, the MOI is a key piece of triage information. MOI describes how energy was transferred from the environment (the vehicle crashing into a telephone pole or the patient landing on a concrete floor at the bottom of a flight of stairs) to the patient.

The velocity (speed) a vehicle was traveling at, how far a person was thrown and what position they were found in at the time of injury can help determine if the mechanism is high or low impact and the direction that force was applied. With anatomical and kinetic knowledge the nurse can project where the energy was transferred and help identify or anticipate likely injuries.

When assessing and documenting MOI, the triage nurse should try to get a clear incident history, including the nature and extent of the trauma. EMS, the patient or the family can help the triage nurse paint a clear picture of the incident.

Direct questions such as the following are useful in assessing MOI:

How many stairs did the patient fall down?

What did he/she land on at the bottom of the steps (concrete vs. feathers)

Were you a pedestrian or riding a bicycle when you were struck? How fast was it traveling?

MOI has been added as a modifier to assist in assigning a CTAS level.

The mechanism of injury may increase risk stratification in stable patients. Patients with a high-risk mechanism of injury are assigned to CTAS Level 2. Examples of high-risk mechanisms of injury appear in the table below.

Notes:

Mechanism of injury	CTAS Level 2
General Trauma	<p>MVC: Ejection from vehicle, rollover, extrication time>20 minutes, significant intrusion into passenger's space, death in the same passenger compartment, impact >40 km/h (unrestrained) or impact>60 km/h (restrained)</p> <p>MCC: Where impact with a car>30 km/hr, especially if rider is separated from motorcycle</p> <p>Pedestrian or bicyclist Run over or struck by vehicle at >10 km/h</p> <p>Fall: From >18 ft (>6 m)</p> <p>Penetrating injury To head, neck, torso or extremities proximal to elbow and knee</p>
Head Trauma	<p>MVC: ejection from vehicle, unrestrained passenger striking head on windshield</p> <p>Pedestrian: struck by vehicle</p> <p>Fall: from >3 ft (>1 m) or 5 stairs</p> <p>Assault: With blunt object other than fist or feet</p>
Neck Trauma	<p>MVC: ejection from vehicle, rollover, high speed (esp. if driver unrestrained)</p> <p>MCC</p> <p>Fall: from >3 ft (>1 m) or 5 stairs</p> <p>Axial load to the head</p>

Adapted from: Murray, M., Bullard, M., Grafstein, E. & CEDIS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. Can J Emerg Med 2004; 6(6); 421-7. Emergency Nurses Association. (2000). Trauma Nursing Core Course Manual. 5th ed.

2.5 Second Order Modifiers

Second Order Modifiers are specific to a limited number of complaints and:

- May be required to supplement 1st Order Modifiers to ensure the patient is assigned an appropriate acuity score or
- May be an absolute requirement to assign a triage score for patients with certain complaints where 1st Order Modifiers are either irrelevant or totally inadequate to assign acuity

Examples:

- Blood Glucose Level
- Degree of Dehydration

2.5.1 Blood Glucose Level

Historically blood glucose determination has not been part of the triage process. It has however become necessary as wait-times continue to increase, for even some of our more urgent patients. Blood glucose level is a second order modifier for patients with diabetes, and/or whose presenting complaint may be consistent with an abnormal glucose level. Measuring the blood sugar in these circumstances may be important in determining and assigning the most appropriate triage level. Complaints that this 2nd order modifier applies to include: hyperglycemia, hypoglycemia, altered level of consciousness, and confusion.

Measure the blood glucose in patients with an altered level of consciousness, seizures, altered behaviour or are known diabetics; as blood glucose readings may assist in determining triage acuity. This should only be undertaken at triage for stable patients. The less stable should be directed to a treatment area where the triage acuity can be assigned at the bedside or assigned applying other modifiers.

CEDIS Presenting Complaint	Blood Glucose Level	Symptoms	CTAS Level
Altered level of consciousness; Confusion; Hyperglycemia; Hypoglycemia	<3mmol/L	Confusion, diaphoresis, behavioural change, seizure, acute focal deficits	2
		None	3
	>18mmol/L	Dyspnea, dehydration, tachypnea, thirst, polyuria, weakness	2
		None	3

Adapted from: Murray, M., Bullard, M., Grafstein, E. & CEDIS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. Can J Emerg Med 2004; 6(6); 421-7.

Studies of healthy adults show that mental efficiency often declines slightly but measurably as blood glucose drops below 3.6 mM. Adrenaline and glucagon are normally released as glucose drops below 3.0 mM producing typical hypoglycemic symptoms of shakiness and dysphoria. [ref] Impairment may not be obvious until glucose falls below 2.2 mM.

Cryer, Phillip E. Glucose homeostasis and hypoglycaemia. In Larsen P, Reed, ed. *Williams Textbook of Endocrinology* (10th ed) Philadelphia: W.B. Saunders 2003. Pp 1585-1618. ISBN 0-7216-9196-X

2.5.2 Dehydration Severity:

Patients presenting with a chief complaint of Vomiting and / or nausea, Diarrhea or General Weakness often requires the triage nurse to consider the severity of, or potential for dehydration, especially if prolonged wait times are anticipated.

The table below provides definitions of dehydration severity based on severity with the relevant acuity score.

These are to be applied if the 1st order modifiers have not already determined an appropriate acuity score for the patient's presentation.

CEDIS Presenting Complaint	Type 1, Second Order Modifier	CTAS Level
Vomiting &/or nausea; Diarrhea; General weakness	<u>Severe dehydration:</u> marked volume loss with classic signs of dehydration and signs and symptoms of shock	1
	<u>Moderate dehydration:</u> dry mucous membranes, tachycardia, plus or minus decreased skin turgor and decreased urine output.	2
	<u>Mild dehydration:</u> stable vital signs with complaints of increasing thirst and concentrated urine & a history of decreased fluid intake or increased fluid loss or both.	3
	<u>Potential dehydration:</u> no symptoms of dehydration but presenting cause of fluid loss ongoing or difficulty tolerating oral fluids.	4

2.5.3 Hypertension/Blood Pressure in adults

Elevated blood pressure can also be used to determine the CTAS level based on the degree of elevation with or without other symptoms present. These are 2nd order modifiers specific to this complaint, however, some hypertensive level 2 patients may present with chest pain or shortness of breath as their chief complaint and may be more appropriate to assess using those complaints. See table below.

ADULT Blood Pressure	Symptoms	CTAS Level
SBP>220 or DBP>130	ANY other hypertension related symptoms (e.g. headache, nausea, shortness of breath, chest pain)	2
SBP>220 or DBP>130	NO other symptoms	3
SBP 200—220 or DBP 110—130	ANY other hypertension related symptoms (e.g. headache, nausea, shortness of breath, chest pain)	3
SBP 200—220 or DBP 110—130	NO other symptoms	4 & 5

Adapted from: Murray, M., Bullard, M., Grafstein, E. & CEDIS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. Can J Emerg Med 2004; 6(6); 421-7.

2.5.4 Other examples of Selected 2nd Order Modifiers

Presenting Complaint	Revised Modifier	CTAS Level
Chest pain, non cardiac features	Other significant chest pain (ripping or tearing)	2
Extremity weakness / symptoms of CVA	time of onset of symptoms < 4.5 hours	2
	> 4.5 hours or resolved	3
Difficulty swallowing / dysphagia	drooling or stridor	2
	possible foreign body	3
Upper or lower extremity injury	Obvious deformity†	3

† To allay concerns that fracture patients with mild/mod pain waiting too long

2.6 Supporting Quality Standards

CTAS has been developed and updated to ensure that an appropriate CEDIS complaint can be selected for almost all common and dangerous ED presentations

It has also ensured that patients with these dangerous presentations will be identified by an experienced triage nurse applying the Critical Look; supported by a series of vital signs and other first order modifiers; and finally that there are a series of specific 2nd order modifiers to help ensure that “time sensitive” emergency conditions are identified and are then assigned a score of CTAS 2 or higher which clearly supports emergency departments in trying to meet these and other standards.

2.7 The Triage Decision

In summary, the triage decision for patients is based on:

Critical first look

Infection control

CEDIS presenting complaint

First Order Modifiers

- Vital signs (respiratory distress, hemodynamic stability, level of consciousness, temperature)
- Others: Pain scale, Bleeding Disorder, Mechanism of injury

Second order modifiers

Nurse judgment (Patients may be up-triaged in cases where nurse gestalt indicates the patient is high risk)

2.8 Reassessments in Waiting Areas

All patients waiting for an initial assessment by a definitive care provider should be reassessed within the following time frames:

Level 1 – Continuous nursing care

Level 2 – Every 15 minutes

Level 3 – Every 30 Minutes

Level 4 – Every 60 minutes

Level 5 – Every 120 minutes

The extent of the reassessment depends upon the presenting complaint, the initial triage level and any changes identified by the patient. Document your reassessment findings and any changes to their acuity score (which may require you to increase their priority to be seen), but never change the initial triage score.

2.9 Group Exercise – Case Scenarios (see handouts)

Review the following cases, determine a triage level and present the rationale.

As you review case scenarios list on the board/flipchart, the information required to assign a CTAS score, include the following...

Critical first look -

CEDIS Complaint/Infection Control -

Subjective data -

Objective data -

1st order Modifier

A/B -

C -

D -

Temp -

Pain/Chronicity -

MOI -

2nd Order Modifier

CTAS Level –

Notes:

Planning Notes:

MODULE Three - Paediatrics

3.1 Triage Guidelines for Paediatrics

Applies to:

- Children from birth up to and including adolescence (the age group for paediatric services will vary depending on hospital policy).
- Older individuals with special needs, who are developmentally and physically challenged, may be more appropriately included in this group e.g. cerebral palsy, seizure disorder.
- Special consideration must be given to technologically dependent youth e.g. ventilator dependent, feeding tubes.

3.2 Comparing Adult and Paediatric Triage

For visits to the emergency department by adults and children, the following triage components are the same:

- The five CTAS levels and related definitions
- Using the CEDIS complaint list (including several Paediatric specific complaints)
- The Triage process

The triage assignment is based on the critical first look, presenting complaint selected, application of appropriate modifiers and additional subjective and objective clinical assessment and judgment

3.3 CTAS Five Level Triage: Paediatric Examples

Level 1 Resuscitation	<ul style="list-style-type: none"> • Seizure (actively seizing) • Unconscious • Major Trauma • Severe Respiratory Distress
Level 2 Emergent	<ul style="list-style-type: none"> • Severe dehydration • Shortness of breath (moderate respiratory distress) O2 Sat <92 • Sore throat with unusual drooling • Permanent tooth dental Avulsion
Level 3 Urgent	<ul style="list-style-type: none"> • Seizure prior to ED, now alert • Foreign body aspiration, no respiratory distress • Puncture wound of soft palate • Moderate asthma, O2 Sat = 92-94 • Head injury, loss of consciousness but now alert (GCS 14 – 15)
Level 4 Less Urgent	<ul style="list-style-type: none"> • Mild asthma, O2 Sat>94 • Lacerations, require sutures • Minor head injury, no loss of consciousness • Fever, unspecified (looks well) [brought from school]
Level 5 Non-Urgent	<ul style="list-style-type: none"> • Dressing change • Prescription renewal • Bites, minor • Minor laceration not requiring stitches

Notes: _____

3.4 The Triage Process

The four-step rapid evaluation process is the same for paediatrics as it is for adults. The screening 5th step (Infection Control) is also included. Most children can be assigned a triage level after the Critical Look, Presenting Complaint (including the history), and measurement of vital signs. It is appropriate to limit the assessment depending on the severity of the initial impression. In a minority of children a more detailed history and examination may be necessary to assign the triage level.

3.5 How Does Paediatric Triage Differ from Adults?

Paediatric Triage differs in the assessment techniques used and the method of interviewing. These need to be modified to match the different development stages and symptom presentations of children.

- The first look is based on the Paediatric Assessment Triangle (PAT), not ABCD
- The anatomic and physiologic assessment and modifiers for paediatrics differ
- The significance of presenting complaints/ symptoms differ
- The physiologic assessment and modifiers for paediatrics differ
- Symptom reports may not accurately reflect the child's condition
- Significant impact of age/ development and psychosocial considerations
- Children may present later in their illness process which necessitates more specific triage assessment
- Children with chronic and complex illnesses are being managed in the community thus increasing the acuity of children presenting to the ED

3.6 Special Paediatric Considerations

Paediatric patients are unique because of their anatomical and physiological differences. Age appropriate assessment equipment and tables of age dependent normal physiology must be available in order to accurately triage paediatric patients.

A child's response to illness and/or injury is affected by their age and stage of development as well as the characteristics of the illness/injury itself.

Psychological factors must be considered in the assessment of a child. Social, cultural and familial influences may also significantly impact on their assessment.

Special circumstances in paediatrics may include:

- Prematurity
- Congenital Anomalies
- Metabolic Disease
- Technology Dependent Children
- Developmentally Challenged Children
- Child Maltreatment

3.6.1 Anatomical Differences

Anatomical differences with paediatric patients include the following:

The relatively larger head size makes small children susceptible to head injuries with relatively minor falls.

- The airway is smaller and more likely to be compromised by a foreign body, mucous and edema. Infants tend to be nose breathers, with relatively big tongues and floppy necks.
- Differences in breathing include higher respiratory rates, increased accessory muscle use, a compliant chest and abdominal breathing.

- The smaller size of the paediatric patient influences their reaction/response to illness or injury.
- Paediatric patient's weight may vary from 400 gm 26-weeks gestation newborns to adolescents over 100 kg. The availability of the necessary range of equipment sizes is essential for accurate paediatric assessment.

Weight in kilograms is an important measurement to guide treatment and therapy.

3.6.2 Physiological Differences

Physiological differences include the following:

- An immature immune system which can increase the risk of sepsis for infants less than three months old and increase the risk of bacteremia for patients less than two years of age
- Increased metabolic rates which result in higher oxygen (O₂), and glucose demand and fluid losses
- Increased Body Surface Area (BSA) compared to weight, which influences temperature control and insensible losses such as sweating and respiratory rates
- A smaller circulating blood volume per kilogram body weight which means that a small amount of blood loss is significant in a small child
- With a higher fluid volume (75 to 80% of body weight in infants is fluid) it is important to assess children for dehydration
- Kidneys are unable to concentrate urine maximally during infancy leading to outputs of 1-2 ml/kg/hour
- Heart rates vary according to age. Infants and children are unable to improve stroke volume without a compensatory increase in heart rate. Bradycardia and hypotension are ominous signs. A noticeable change in heart rate is significant to prognosis.

3.7 Psycho-social Differences

Age in years	Likes/Dislikes
Infant 0 - 1	Likes cuddling, soother, music, to be wrapped in a blanket
Toddler 1 - 3	Likes bubbles, distract and play during exam, fears separation
Preschooler 3 – 5	Likes stickers, games during exam, take words literally
School-aged 5 -12	Like to be involved, touch equipment, given choices, explanations, fear pain and disfigurement
Adolescents 12+	Body image is important, interview alone, be alert for substance abuse, depression, sexual activities, respect confidentiality
Special needs	Technologically dependent or challenged, provide comfort, determine what is normal for that child based on parents perception/feedback

Psycho-social assessment:

Examine the general appearance and level of consciousness. Interactions with children must be based on each child's intellectual and emotional developmental stage. Care must be taken not to prejudge intelligence or anticipated reactions by the child's size and/or appearances. Children with obvious physical challenges such as cerebral palsy and hydrocephalus may be normal or even of superior intelligence. Children with obvious Down's Syndrome may vary widely in speech and social development from those in need of total care and protection, to those capable of independent living.

- Note the child's emotional response to stimuli
 - Anxiety, indifference, inability to be consoled may indicate an altered level of consciousness or an altered perception/response to their environment due to systemic illness or psychic trauma
- Look at the caregiver/child interaction
 - Does the story/history make sense?
 - Is what you hear and see the same?
 - Children with disabilities and chronic illness are at higher risk for abuse so always ensure that what you hear and see matches.

3.8 Critical Look – The Paediatric Assessment Triangle

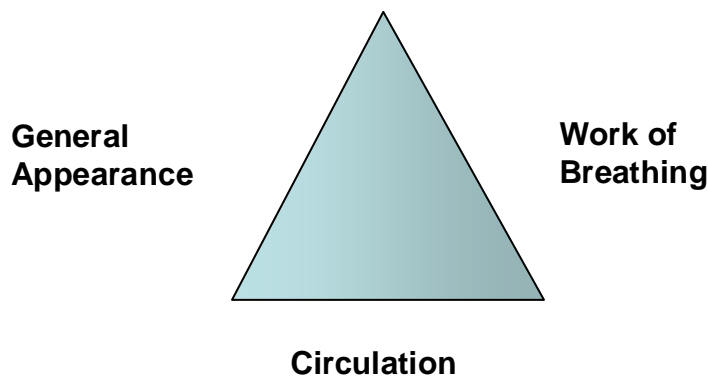
The initial step in triage is a critical first look. This may utilize

- Your initial impression
- A rapid visual assessment
- The emergency services assessment
- The paediatric assessment triangle

Similar to Adults, the Paediatric Assessment Triangle (PAT) is a rapid 3 – 5 second assessment that assists the triage nurse to rapidly identify those children who are critically ill or at risk for sudden deterioration, focusing on appearance, breathing, and circulation. When there is no obvious CTAS 1 condition at the time of initial contact, the triage nurse should proceed to complete the triage.

The PAT summarizes the most important components of the Critical First Look.

The Paediatric Assessment Triangle



Critical Look - General Appearance

- Alert and responsive?
- Interacting with caregiver?
- Normal skin colour, eyes, general appearance?
- Speaking or crying? Clear, muffled, normal or abnormal pitch?
- Dressed appropriately for the weather?
- Content or consolable?

It is important to observe both the child and accompanying persons. Is the child alert, responsive and is interacting with the environment appropriately for age and developmental level? By observing behaviour, the triage nurse can learn about the child's condition--how they play, eat, speak—may help indicate the severity of their condition.

Examples:

- A grey limp infant with open staring eyes is Level 1 (Resuscitation);
- A toddler asleep in a stroller who is blue and mottled is Level 1 (Resuscitation);
- Generalized tonic/clonic movements at any age is a Level 1 (Resuscitation);
- A child rejecting feeds, exhibiting general disinterest, lethargy, unexplained irritability, or loss of tone are all very worrisome and should be triaged a Level 2 or higher and may represent serious conditions such as sepsis, metabolic disorder, a toxin ingestion, child maltreatment or others;
- A child with varicella needs immediate isolation;
- An alert child who is feeding himself potato chips can await further triage evaluation;
- A child in diaper and tee shirt may be appropriately dressed for a hot summer day, but not appropriately during a snowstorm. Triage nurses must be alert to the possibility of child maltreatment and neglect. On the other hand, the parents/caregivers may have left home without dressing the child because they believed that the child's life was in danger.

Critical Look - Breathing

- Assess respiratory rate – too fast, normal, or too slow
- Assess respiratory effort – accessory muscle use, nasal flaring, and retractions
- Listen for adventitious sounds such as expiratory grunting, wheezing or stridor without placing a stethoscope on their chest

A marked decrease in respiratory effort should be considered a life threatening situation

Examples:

Critical Look – Circulation

- Assess skin colour – abnormal circulation may be indicated by mottling, pallor or cyanosis
- Check for uncontrolled bleeding
- Note signs of dehydration - sunken fontanelle or eyes, recent weight loss, dry mucous membranes, absent tears
- A normal capillary refill time is less than 2 seconds
- Note that an altered level of consciousness is also a sign of decreased brain perfusion

Examples:

Based on your critical look the assignment of a CTAS level 1 or 2 may be indicated and the appropriate 1st order modifier defined. The patient should be immediately transferred to an appropriately resourced ED treatment area. If the critical look does not suggest a compromised child, more information is required before assigning CTAS level.

Some final tips to keep in mind when assessing paediatric patients:

- Sleeping babies are the same as unconscious babies. Wake them up!
- A child's head and torso needs to be observed. Uncover them!
- Interview paediatric patients before you touch them
- Listen to the parents/caregivers – they know their children best and can detect the subtle changes in behaviour and physiologic status
- Check the caregiver's perception of the illness/injury
- Do the most invasive examination at the end of the assessment Consider isolation needs

Notes:

3.9 Presenting Complaint

Limit exploration of the history to the facts necessary for an accurate triage assessment. The triage history is not a substitute for the primary nursing or physician history. The experienced triage nurse recognizes which circumstances require a more extensive history.

- Common complaints may present differently in children than in adults
- Symptom reports may not accurately reflect the child's condition
- Five common paediatric presenting conditions include:
 - Fever
 - Respiratory difficulties
 - Vomiting and/or diarrhea (dehydration)
 - Injuries
 - Change in behavior
- The complete CEDIS Presenting Complaint List can be found in Appendix B
- Paediatric specific complaints are listed in the table below
-

Complaint Category	Complaint
GASTROINTESTINAL	Oral / Esophageal foreign body*
	Feeding difficulties in newborn
	Neonatal jaundice
MENTAL HEALTH	Concern for patient's welfare*
	Paediatric disruptive behaviour
ORTHOPEDIC	Paediatric gait disorder / painful walk
NEUROLOGIC	Floppy child
RESPIRATORY	Stridor
	Wheezing – no other complaints
	Apneic spells in infants
GENERAL & MINOR	Congenital problems in children
	Newly Born §

*Also applicable to adults: Concern for patient’s welfare covers such potential problems as sexual abuse, elder abuse, psychological abuse, neglect, etc.

§ Newly Born refers to a neonate who was born precipitously at home or on the way to hospital or in the emergency department (note that Newly Born is automatically a CTAS level 2 acuity and only modified up to a CTAS 1 by VS modifiers).

3.10 Subjective Assessment

To obtain the triage history, the triage nurse may be interviewing the caregiver rather than the patient. The approach to interviewing and communication varies depending on the age of the patient: The following table will guide the triage nurse in proceeding with the interview:

Age Group	Technique
Infant:	Ask the caregiver questions. The interview should be done with the child in the caregiver’s arms. Do invasive procedures such as temperature measurement last.
Toddler:	Observe the child in the caregiver’s arms. Note the way the child plays and interacts. Do invasive procedures last
Preschooler:	Use age appropriate language for explanations. The child may participate in the history. Again, do invasive procedures last.
School Aged and Adolescents:	Allow the child to participate by involving the child in the interview and using age appropriate language. Privacy is very important for this age group.

C	Complaint	List the chief complaint using two descriptive words and the CEDIS list of chief complaints
I	Immunization/ Isolation	Check for standard immunizations and assess if isolation is appropriate
A	Allergies	Check for allergies
M	Medications	List all medications/vitamins/homeopathic remedies
P	Parents Perception of Illness/Past History	Solicit this information from the family. Get the parent’s perception of the child’s past health, the condition at present and why they bring the child to the ED today
E	Events	Determine the events surrounding the illness or injury. Ask the child/caregiver what happened

D	Diet/diapers	When and what did the child eat last? Last voiding/ bowel movement if applicable
S	Symptoms	Note signs and symptoms associated with the illness/injury

Emergency Nurses Association ENPC provider manual. (2004). 3rd ed. – used with permission
 Particularly in younger children it is sometimes necessary to complete a screening history CIAMPEDS to define the triage level. Additional questioning may be required dependent on co-existing conditions to identify potential problems. Children may not be able to describe severity of illness. The extent to which symptoms have interfered with usual activities, eating patterns and behaviours/personality may provide clues to assist in the assignment of acuity.

3.11 Vital Signs - Physiologic Assessment

- Respiratory rate and effort
- Heart rate and perfusion (capillary refill)
- Appearance/neurologic assessment
- Documentation at triage is essential unless child is immediately directed to a treatment area
- Temperature is then measured and recorded in stable patients

Vital signs should be completed on all paediatric patients during their emergency visit. The time at which vital signs are measured may depend on patient presentation. For patients assessed as Levels 1 or 2, vital signs are measured during treatment. Level 3 patients usually require vital sign assessment to confirm their CTAS score, to help determine whether it is safe for them to wait for treatment. For patients assessed as Levels 4 and 5, measurement of some or all of their vital signs may be done at triage or in the treatment area.

Children triaged as CTAS 1 (Resuscitation) or CTAS 2 (Emergent) should never be delayed at triage to complete a history or measure vital signs to confirm their triage level. Evidence that the child is in shock, severe respiratory distress, or unconscious (CTAS 1) will be obvious with the Critical First Look. Evidence that the child is hemodynamically compromised, moderate respiratory distress or has an altered level of consciousness (CTAS 2) may require the nurse to do a slightly more thorough Critical Look applying the Pediatric Assessment Triangle (PAT) but rarely a full set of vital signs to determine acuity.

3.11.1 Vital Signs in Acuity Determination (1st order modifiers)

- Attempt to measure while child is quiet
- Normal vital signs vary individually depending on age, development and physical status
- Vital sign measurement and general appearance must both be considered in triage level assignment
- Vital signs must be appropriate for child's general condition; in the child who appears ill, vital signs in the normal range may indicate a pre-cardiopulmonary arrest state

Vital Signs & CTAS Level

- CTAS 1 (Resuscitation) - children with vital signs ≥ 3 standard deviations outside the range of normal values
- CTAS 2 (Emergent) - children with vital signs 2 standard deviations outside the range of normal values
- CTAS 3 (Urgent) - children with vital signs 1 standard deviation outside the range of normal values
- CTAS 4 (Less Urgent) or CTAS 5 (Non-Urgent) - is based on further history and must have normal vital signs

When assessing physiological parameters the triage nurse must consider the child's general condition.

1. Respiratory Rate and Effort Assessment

To assess the respiratory effort, you need to examine the child's airway and breathing, including:

- Expose and assess for a patent airway
- Measure respiratory rate
- Assess respiratory effort, including use of accessory muscles, adequacy of air entry and adventitious breath sounds
- Look for the child's preferred posture, drooling (after infancy), dysphasia and abnormal airway sounds
- Auscultate for adequacy of air entry and adventitious breath sounds
- Use age based physiologic chart (see Appendix F)

This following table helps to classify the degree of respiratory distress both subjectively and objectively.

Respiratory Signs of Distress	Rate (see Appendix)	O ₂ Sat	PEFR baseline	CTAS Level
Severe: Excessive work of breathing, cyanosis; lethargy, confusion, inability to recognize caregiver, decreased response to pain; single word or no speech; tachycardia or bradycardia; tachypnea or bradypnea, apnea irregular respirations; exaggerated retractions, nasal flaring; grunting; absent or decreased breath sounds; upper airway obstruction (dysphagia, drooling, muffled voice, labored respiration's and stidor); unprotected airway (weak to absent cough or gag reflex); poor muscle tone	3 or more standard deviations from (> or <) normal	<90%	-	1
Moderate: Increased work of breathing, restlessness, anxiety, or combativeness; tachypnea; hyperpnea; mild increased use of accessory muscles, retractions, flaring, speaking phrases or clipped sentences, stridor, but airway protected, prolonged expiratory phase	2 standard deviation from (> or <) normal	<92%	<40% baseline	2
Mild: Dyspnea; tachypnea; shortness of breath on exertion; no obvious increased work if breathing; able to speak in sentences; stridor without obvious airway obstruction; mild shortness of breath on exertion; frequent cough.	1 standard deviation from (> or <) normal	92% to 94%	40% to 60% baseline	3
None	normal range	>94%		4,5

Oxygen Saturation Assessment

Consideration has to be given to the geographical location (altitude) and the correct procedures.

Usual indications for O₂ saturation measurement include:

- children with known respiratory or cardiac disease;
- children with abnormal respiratory and/or cardiovascular findings;
- before and after symptom relief therapy, when medical directives/care plans/standard protocols are in place.
- **children triaged as CTAS 1 or CTAS 2 should never be delayed at triage to complete history or measurement of vital signs to confirm triage level**

Often it is difficult to measure O₂ saturation in children and you may have to rely solely on your observation of the signs.

If peak expiratory flow rate (PEFR) is used at triage in your hospital you should:

- Use only in children age 6 years and over.
- Repeat PEFR. Most children need 3 to 4 attempts to obtain an appropriate measure
- Use gender specific tables. These are inaccurate guidelines as research has shown wide variations in PEFR normals in children of different physical build and racial background.
- Use the individual child's baseline PEFR to calculate percentage predicted.

What signs indicate a compromised airway?

What signs indicate increased work of breathing?

Notes:

2. Heart Rate and Circulatory Assessment

The circulatory assessment includes:

- Heart rate
- Presence of peripheral pulses
- Capillary refill
- Skin colour, skin tactile assessment (warm/flushed, cool/cold, moist/dry)
- Check for uncontrolled bleeding
- Use age based physiologic chart (see Appendix F)

Tachycardia is an early response while bradycardia and hypotension occur late, signaling imminent cardiac arrest.

Dehydration and hypovolemia can be life threatening.

Hemodynamic Stability

The triage nurse must recognize serious and life-threatening signs of altered perfusion.

Hemodynamic Status	Heart Rate (see Appendix)	CTAS Level
Shock: Evidence of severe end-organ hypoperfusion: cool skin, diaphoresis, weak or thready pulse, hypotension, postural syncope, significant tachycardia or bradycardia, ineffective ventilation or oxygenation, decreased level of consciousness. Could also appear as flushed, febrile, toxic, as in septic shock.	3 or more standard deviations from (> or <) normal	1
Hemodynamic Compromise: Evidence of borderline perfusion: Delayed capillary refill, tachycardia, decreased urine production and skin changes suggest poor tissue perfusion. Vomiting and diarrhea secondary to gastrointestinal infection are a common etiology. The signs of dehydration are not always reliable, particularly in younger patients. Hemorrhage in moderate trauma may be masked by a child's ability to maintain his or her blood pressure.	2 standard deviations from (> or <) normal	2
Volume depletion with abnormal vital signs.	1 standard deviation from (> or <) normal	3
Normal vital signs	normal range	4, 5

Notes:

3. Appearance /Neurological Assessment

Examine general appearance and level of consciousness.

- Note the child's emotional response to stimuli. Anxiety, indifference and inability to be consoled may indicate an altered level of consciousness
- Look at the caregiver/child interaction. Does the story make sense? Are what you hear and see the same?

Use of the Glasgow Coma Scale (GCS) is recommended. See Appendix C.

What are the potential causes of altered level of consciousness?

- Hypoxia
- Injury
- Medication

How do you recognize an altered level of consciousness?

- Inability to recognize caregiver
- Decreased level of response to environment
- Restlessness
- Confusion
- Anxiety
- Indifference
- Inability to be consoled
- Does the story make sense? Are what you hear and see the same--always consider the possibility of child maltreatment.

A child with no cause for neurological impairment requires further investigation

Level of Consciousness using the Glasgow Coma Scale (GCS)

Level of conscious assessment at triage provides important information about brain function. Quantifying brain function at triage is easily done using the Glasgow Coma Scale (GCS) Score, however, has only been validated for use in head injured patients, but has been used as a recognized method to transmit information about level of consciousness between care providers.

A score of 3-9 indicates significant injury or loss of function and automatically places the patient in CTAS 1. A GCS of 10-13 indicates brain organ dysfunction and places patients in CTAS 2. Patients with dementia, cognitive impairment or chronic neurologic dysfunction make the use of the score difficult. Attempt to determine baseline function and assess if there is any change from the patient's norm.

See Appendix C

Level of Consciousness - Status	GCS	CTAS Level
Unconscious: unresponsive; responds to pain or loud noise only and without purpose; flexion or extension position; continuous seizing; progressive deterioration in level of consciousness; unable to protect airway	3 – 9	1
Altered level of consciousness: a change from ones 'normal' level of consciousness; lethargic; obtunded; localizes to painful stimulus; confused; disorientated; restless; irritable; agitated or combative; inconsolable, poor feeding in an infant; able to protect their airway; alert with minor behavioral or vital sign alterations from normal;	10 – 13	2
Conscious: a state of awareness, implying orientation to person, place and time; interacts appropriately for age (e.g. infant coos and babbles); consolable	14 – 15	3, 4 or 5

If a patient's GCS has deteriorated from the initial value be prepared for further deterioration. Examples: 15 to 14, 13 to 11. There may be very little warning before the infant/child is unable to protect their airway.

Notes:

4. Temperature Assessment

- Assuming the other vital signs are stable evaluating temperature at triage is appropriate to help determine acuity.
- Changes in temperature may be an early indication of life-threatening conditions in neonates and immunosuppressed children.
- Paediatric patients with any indication of an infectious process need temperature assessment.
- It is often essential to further management to weigh the child but this assessment may be deferred.
- Therapeutic intervention protocols in the waiting area are often considered

Age	Recommended technique
30 days to 2 years	First choice: Rectal (definitive) Second choice: Axillary (screening)
Over 2 years to 5 years	First choice: Rectal Second choice: Ear Third choice: Axillary
Older than 5 years	First choice: Oral Second choice: Ear Third choice: Axillary

*Adapted from Tables 1 and 2 of: Community Paediatrics Committee, Canadian Paediatric Society (CPS). Temperature Measurement in Paediatrics [position statement]. *Paediatric Child Health*; 2000;5(5):ref no CP00-01. Reprinted with permission of CPS.

See Appendix D.

Rectal temperature measurement is recommended for all children under two years of age. There is significant research that identifies that rectal temperatures most closely approximate core temperature. However, rectal temperature should not be measured in neonates or a child who is immunocompromised. Axillary temperature measurement is appropriate for screening these patients. Newborns are at greater risk of rectal tears and are immune suppressed and at risk of contracting infections. Immune suppressed patients are at significant risk of septicemia or severe infections.

Neonates, young infants and children with damaged brains may present with hypothermia when they are septic. Listen to their caregivers; they are usually able to recognize signs of sepsis in their child who is challenged. There are several studies that document the accuracy of tactile temperatures by caregivers and all reports of elevated temperatures should be taken seriously.

Children with immune suppression states, e.g. oncology and sickle cell disease, may present with a low-grade fever, in the absence of other symptoms, when they develop sepsis.

Although no randomized controlled trial has established the specific rate of increase in heart rate with increase in temperature, it is generally accepted that a child's heart rate should not increase more than 10-15 beats per minute per degree rise in temperature Celsius.

Abnormal (high or low) temperatures can indicate acuity level:

Age	Temperature/Signs	Descriptor	CTAS Level
0 – 3 ms	> 38.0° C or < 36.0° C		2
All ages	> 38.0° C or < 36.0° C	Immunocompromised (e.g. neutropenia, transplant, steroids)	2
> 3 mos to 3 yr	> 38.5° C	Looks unwell	2
		Looks well	3
> 3 yr	> 38.5° C	Looks unwell – consider RR and HR	3
		Looks well	4

- Fever and looks unwell refers to patients who looks flushed, are in a hyperdynamic state and anxious, agitated or confused.
- Fever and looks well refers to patients who look comfortable, are in no distress, with normal pulse quality, and are alert and oriented.

Notes:

3.12 Non Physiologic Parameters

Other modifiers may be utilized depending on the presenting complaint and CIAMPEDS to determine the appropriate CTAS level.

- Pain
- Bleeding Disorder
- Mechanism of injury

Notes:

1. Paediatric Pain Assessment

An age and developmentally-appropriate pain scale should be attempted on all children with pain. Pain scales are not absolute, but do allow patients to communicate the intensity of a problem from their perspective.

Pain can often be managed appropriately through the use of therapeutic intervention protocols in the waiting area. Each organization should have triage protocol/medical directive/care plan to provide pain relief at triage.

Pain can be quantified in children. Accuracy varies with age and developmental stage. See appendix E for pain assessment tools.

Note that the Paediatrics guidelines do not distinguish between central and peripheral pain. Pain indications in children differ from adults. For example: chest pain is usually MSK.

The triage nurse also needs to differentiate between chronic and acute pain, recurring or episodic pain. Patients with acute worsening of the same chronic pain can be assigned a lower level. Acute pain is a new onset of pain and is more likely to be dangerous than chronic pain. Chronic pain is a well-recognized recurring pain syndrome with the same pattern. Children with chronic or recurrent painful conditions, e.g. Sickle Cell Syndromes and Juvenile Rheumatoid Arthritis, learn to live with their disability. They frequently present with caregiver reports of changes in behaviour and appear less distressed than their physiologic parameters suggest they should be.

Physiologic Indicator of Pain	Key Manifestations
Acute Pain	Signs of sympathetic stimulation. Tachycardia, hypertension, dilated pupils, diaphoresis, increased heart rate, respiratory rate, blood pressure.
Chronic Pain	Signs of lower physiologic response than expected by score.
Pain Behaviours	Restless, agitation, inconsolable, unable to distract, short attention span, facial grimacing, holding/guarding, sleep disturbances, anorexia, lethargy.
Indicators of Localized Pain	Fetal position, flexing and extending knees, ear pulling, rolling head from side to side, refusing to move a body part.

Pain scales are less helpful and less reliable in infants and young children. However, a pain assessment is used to determine triage acuity to ensure your prompt identification of symptoms of illness/injury and to control the symptoms.

- Pain perception is subjective. Individual variability is influenced by age, past experience and cultural differences.
- Past experience with pain management such as intramuscular injections, may cause children to deny present pain.
- Anxiety may be confused with pain or may complicate painful situations.
- General appearance and physiological parameters should also be considered when evaluating the patient's level of pain. Tachycardia, pallor, sweating and other physiological signs are useful in the evaluation of pain level.
- In adults, pain in the head, chest and abdomen may be associated with more severe illness and need specific investigations. In infants and younger children this is not generally the rule. Paediatric chest pain rarely signifies any significant pathology.
- Intense pain can be associated with benign processes (eg. Otitis media).
- Pain scales are less helpful (or reliable) at the extremes of age.

The decision to assign a CTAS level based on pain is a combination of:

- The patient’s report of their pain score – mild, moderate, severe (use the Wong-Baker or a 10-point pain scale)
- The duration of the pain - acute or chronic
- The nurse’s objective assessment of the patient’s response to pain i.e. how distressed the patient looks and the physiologic response to pain.

The triage nurse must record both the patient’s subjective reporting of the pain and his/her objective assessment of the pain.

Note that many patients will report their pain as mild to moderate but you may observe a higher level of distress. Nurse assessment of the response to pain is key.

Pain Severity & Score*	Acute v.Chronic Pain	CTAS Level
Severe 8 -10	Acute	2
	Chronic	3
Moderate 4 -7	Acute	3
	Chronic	4
Mild 1 – 3	Acute	4
	Chronic	5

Notes:

2. Bleeding Disorder Assessment

See under Bleeding Disorder in Module 2 under 2.6, page 28

3. Mechanism of Injury

The triage nurse must assess and document the mechanism of injury (MOI) for all patients with injuries/symptoms/complaints related to trauma. MOI describes how energy was transferred from the environment (the vehicle crashing into a telephone pole or the patient landing on a concrete floor at the bottom of a flight of stairs) onto the patient and will assist in the determination of “how much energy or force” was applied to the patient’s body structures and organs. The higher the energy force (e.g. a car roll over MVC, fall from greater than 1 meter) the more severe the extent of tissue damage and trauma. The velocity (speed) a vehicle was traveling at, how far a person was thrown and what position they were found in at the time of injury can determine if the mechanism is high or low impact. The nurse can be directed to specific body parts (head, neck, abdomen etc.) with knowledge about how energy was transferred.

When assessing and documenting MOI, the triage nurse must get a clear incident history, including the nature and extent of the trauma. EMS, the patient, or family can help the triage nurse determine a clear picture of the incident. Direct questions such as the following are useful in assessing MOI:

- How many steps did the patient fall down?
- What did he/she land on at the bottom of the steps (concrete vs. feathers)?
- How fast was the vehicle traveling? How damaged was the vehicle the patient was in?

The mechanism of injury may increase risk in stable patients. Patients with a high-risk mechanism of injury are assigned to CTAS Level 2. Although this is not an all inclusive chart, examples of the mechanism of injury appear below:

Mechanism of injury	Description	CTAS Level
General Trauma	<p>MVC: Ejection from vehicle, rollover, extrication time >20 min, significant intrusion into passenger's space, death in the same passenger compartment, impact >40 km/h (unrestrained) or impact >60 km/h (restrained)</p> <p>MCC: Where impact with a car >30 km/hr, especially if rider is separated from motorcycle</p> <p>Pedestrian or bicyclist Run over or struck by vehicle at >10 km/h</p> <p>Fall from >3 ft (>1 m) or 5 stairs</p> <p>Penetrating injury To head, neck, torso or extremities proximal to elbow and knee</p>	Level 2
Head Trauma	<p>MVC: ejection from vehicle, unrestrained passenger striking head on windshield</p> <p>Pedestrian struck by vehicle</p> <p>Fall from >3 ft (>1 m) or 5 stairs</p> <p>Assault: With blunt object other than fist or feet</p>	Level 2
Neck Trauma	<p>MVC: ejection from vehicle, rollover, high speed (esp. if driver unrestrained)</p> <p>MCC:</p> <p>Fall from > 3ft (1 m) or 5 stairs Axial load to the head</p>	Level 2

Notes:

3.13 2nd Order Modifier

Second Order Modifiers are specific to a limited number of complaints and:

- May be required to supplement 1st Order Modifiers to ensure the patient is assigned an appropriate acuity score or
- May be an absolute requirement to assign a triage score for patients with certain complaints where 1st Order Modifiers are either irrelevant or totally inadequate to assign acuity

Examples:

- See 2.5.1 Blood Glucose Level
- See 2.5.2 Degree of Dehydration
-

Paediatric specific complaint examples:

Presenting Complaint	2 nd Order Modifier	CTAS Level
Floppy child	No tone, unable to support head	2
	Limited / less than expected muscle tone	3
Paediatric gait disorder / painful walk	Gait or limp problems with fever	3
	Walking with difficulty	4
Congenital problem in children	Conditions and protocol letters identifying concerns for rapid deterioration or need for immediate therapy Vomiting/diarrhea in a child with inherited metabolic disease, type 1 diabetes or adrenal insufficiency	2
	Caregivers identifying need for care	3
	Stable child with congenital disease with potential for problems	4
*Stridor	Airway compromise	1
	Marked stridor	2
	Audible stridor	3
Apneic spells in infants	Apneic episode on presentation	1
	Recent spell consistent with apnea or respiratory compromise	2
	History of spells consistent with apnea	3
Inconsolable crying in infants	Inconsolable infant – abnormal vital signs	2
	Inconsolable infant - vital signs stable	3
	Irritable but consolable	4
Respiratory foreign body OR Foreign body nose OR Oral / esophageal foreign body	**Button battery, no symptoms	3

*** Stridor modifier definitions**

Airway compromise = stridor may be hard to hear with extreme indrawing and distress (level 1)

Marked stridor = inspiratory and expiratory stridor with indrawing (level 2)

Audible stridor = easily audible at rest (level 3)

**While not an imminent danger, it is important to recognize that failure to pass, or be removed, button batteries are caustic when ruptured and can lead to serious consequences

Notes:

Reassessments

- Advise patients to return to triage if their condition changes while waiting
- Reassess waiting patients within the following time frames:
- CTAS 1- continuous nursing care
- CTAS 2 - every 15 minutes
- CTAS 3 - every 30 minutes
- CTAS 4 - every 60 minutes
- CTAS 5 -every 120 minutes
- Document reassessments - never change the original CTAS level, however, if the patient's condition changes, then the acuity score needs to be changed.

The extent of the reassessment depends on what has changed and what was the basis of the original CTAS level assigned. It is not necessary to reassess every modifier, only those that affected the CTAS level.

Notes:

MODULE FOUR - Applying CTAS
Selected Complaints and Second Order Modifiers

4.1 Introduction

The CEDIS list allows the triage nurse to designate an appropriate complaint for the majority of emergency department presentations.

The Critical Look is required to identify those patients too “ill or injured” to complete a formal triage process and are immediately directed to an appropriate resuscitation area and care provider.

First Order Modifiers interpret vital sign abnormalities, assess pain severity, bleeding disorders, and mechanism of injury where appropriate to help assign an appropriate acuity level.

For many patients and many complaints there are additional features of their presentation that clearly impact their acuity assignment. These have been identified as Second Order Modifiers.

4.2 Selected Special Complaints

- Some complaints have only a single acuity level option and as such act as their own 2nd order modifier
- For some complaints 2nd order modifiers are mandatory or frequently important to assign an appropriate triage score (2nd order modifier in brackets below)

Level 1 Resuscitation	<ul style="list-style-type: none"> • Cardiac arrest, non traumatic • Cardiac arrest, traumatic • Respiratory arrest • Seizure (actively seizing) • Violent/homicidal behaviour (imminent harm to self or others or specific plans)
Level 2 Emergent	<ul style="list-style-type: none"> • Chemical exposure, eye • Palpitations/irregular heart beat (history of documented lethal) • Syncope/presyncope (no prodromal symptoms) • Burn (>25% BSA) • Frostbite/cold injury (cold pulseless limb) • Amputation (traumatic amputation of a digit)
Level 3 Urgent	<ul style="list-style-type: none"> • Vertigo (positional, no other neuro symptoms) • Extremity injury (tight cast with neurovascular symptoms) • Blood and body fluid exposure (low risk exposure) • Major trauma – blunt (prolonged spinal immobilization)
Level 4 Less Urgent	<ul style="list-style-type: none"> • Unilateral reddened hot limb (localized inflammation) • Laceration/puncture (sutures required) • Blood in stool/melena (rectal bleeding small amount) • Sexual assault (> or equal to 12 hours, no injury)
Level 5 Non-Urgent	<ul style="list-style-type: none"> • Nasal congestion/hay fever • Imaging tests • Exposure to communicable diseases • Loss of hearing (gradual loss)

4.3 Second Order Modifiers

Second Order Modifiers are specific to a limited number of presenting complaints

It is important to realize that there are in fact a large number of second order modifiers that require awareness. Of 165 CEDIS complaints, 95 Adult and 102 Paediatric complaints have 2nd order modifiers, however, many are not required frequently to be able to assign an appropriate acuity score.

Second Order Modifiers are much more complaint specific and may in fact lead the nurse to change from the initial complaint. For example, specific blood pressure measurements (i.e. SDP >220 mmHg with or without symptoms) are second order modifiers for the complaint "Hypertension". If the patient presented with a Level 4 ankle injury but had a blood pressure of 230/120 mmHg but no associated symptoms, they would meet the requirements for a Level 3 acuity under the CEDIS complaint "Hypertension". The triage nursing notes would indicate that the patient presented complaining of a minor ankle injury and that asymptomatic hypertension was identified leading to the acuity score. The primary nurse and physician are then free to determine how to manage the patient.

Specific 2nd Order Modifier Examples

- Environmental
- Late Pregnancy
- Mental Health

4.3.1 Environmental Exposure

Low temperature can indicate acuity level. For environmental exposures it is important to identify a low core temperature. For patients with core temperatures <32C, invasive rewarming needs to be considered. Relevant CEDIS complaints include: Hypothermia or Near Drowning

Temperature	CTAS Level
< 32.0° C	2
32.0° - 35.0° C	3
> 35.0° C, no frostbite, normal VS	4

4.3.2 Obstetrical patients with complications of pregnancy > 20 weeks gestation

For patients with late term pregnancy concerns a number of second order modifiers have been developed to help assign an appropriate triage acuity score and are outlined in the table below. Like other emergent presentations, the final acuity score may be assigned after medical interventions are initiated, the patients needs are taken care of and the specifics of the presentation are clarified. Some of these modifiers can be gleaned by communication with the patient or EMS personnel, however, some may require the findings of the physician or fetal monitor to make a final assignment.

CEDIS Presenting Complaint	Second Order Modifier	CTAS level
Pregnancy issues > 20 weeks	Presenting fetal parts or prolapsed cord	1
	Vaginal bleeding 3 rd trimester	1
	Active labour (contractions \leq 2 min)	2
	No fetal movement / No fetal heart tones	2
	Headache +/- edema +/- abdominal pain +/- hypertension	2
	Post delivery	2
	Active labour (contractions >2 min)	3
	Possible leaking amniotic fluid	3

Adapted from: Murray, M., Bullard, M., Grafstein, E. & CEDIS National Working Group. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. Can J Emerg Med 2004; 6(6); 421-7.

4.3.3 Mental Health

For the mental health complaints a relevant set of second order modifiers have been developed to assist in the assignment of an appropriate triage level and are outlined in the table below. Further work needs to be done to help validate these modifiers or to suggest changes. At the same time emergency departments need to evaluate their capacity to manage mental health patients within their current environment and to create the necessary physical and human resource support teams to safely and appropriately manage these patients. CEDIS complaint "Concern for Patients Welfare" covers such potential problems as sexual abuse, elder abuse, psychological abuse, neglect, etc. All mental health complaints are applicable across the age spectrum except for "Paediatric behavioral change".

CEDIS Presenting Complaint	Second Order Modifier	CTAS level
Depression / Suicidal / Deliberate Self harm	Attempted suicide or clear plan	2
	Active suicidal intent	2
	Uncertain flight or safety risk	2
	Suicidal ideation, no plan	3
	Depressed, no suicidal ideation	4
Anxiety/ Situational crisis	Severe anxiety/agitation	2
	Uncertain flight or safety risk	2
	Moderate anxiety/agitation	3
	Mild anxiety/agitation	4
Hallucinations / Delusions	Acute psychosis	2
	Severe anxiety/agitation	2
	Uncertain flight or safety risk	2
	Moderate anxiety/agitation or with paranoia	3
	Mild agitation, stable	4
	Mild anxiety/agitation, chronic hallucinations	5
Insomnia	Acute	4
	Chronic	5
Violent / Homicidal Behaviour	Imminent harm to self or others or specific plans	1
	Uncertain flight or safety risk	2
	Violent / homicidal ideation, no plan	3
Social Problem	Abuse physical, mental, high emotional stress	3
	Unable to cope	4
	Chronic, non urgent condition	5
Bizarre behaviour	Uncontrolled	1
	Uncertain flight or safety risk	2
	Controlled	3
	Harmless behavior	4
	Chronic, non urgent condition	5
Concern for patient's welfare	Conflict or unstable situation	1
	Risk of flight or ongoing abuse	2
	Suspected physical or sexual assault	3
	History / signs of abuse or maltreatment	4
Paediatric disruptive behaviour	Uncertain flight or safety risk / family distress	2
	Acute difficulty with others / environment	3
	Persistent problematic behaviour	4
	Chronic, unchanged behavior	5

Adapted from: Bullard, M., Unger B, Spence J, Grafstein E. Revisions to the Canadian Emergency Department Triage and Acuity Scale (CTAS) Adult Guidelines. Can J Emerg Med 2008;10(2);136-142

MENTAL HEALTH TERM	DEFINITION
<i>Suicide related terms</i>	
Suicide attempt	Self-injurious behavior with a non-fatal outcome accompanied by evidence (explicit or implicit) that the person attempted to die.
Suicide intent	Subjective expectation and desire for a self-destructive act that would end in death.
Suicidal ideation	Thoughts of serving as an agent of one's own death may vary in seriousness depending on the specificity of plans and the degree of suicidal intent.
Uncertain flight or safety risk	Patients threatening violence toward themselves or others; patients exhibiting uncontrolled anger, restlessness, paranoia or hallucinatory behavior; or patients unable or unwilling to cooperate with a suicide risk assessment and who pose a flight risk. Need close observation based on site resources and capability. (Note: if a family member is willing to observe & both parties agree, 'hospital-assigned' close observation may not be required).
<i>Anxiety and agitation definitions</i>	
Severe anxiety / agitation	Extreme unease, apprehension or worry with signs of excessive circulating catecholamines; or dangerously agitated and uncooperative and does not calm down when asked.
Moderate anxiety / agitation	Clear unease, apprehension, or worry, but no obvious tachycardia or tremulousness; or signs of agitation and does not consistently obey commands (e.g., will sit or calm down when asked, but soon becomes restless and agitated again).
Mild anxiety / agitation	Mild unease, apprehension or worry, but can be reassured; or restless but cooperative; obeys commands.
<i>Hallucination and delusion related definitions</i>	
Acute psychosis	May present with extreme self-neglect, disordered or racing thoughts or both, speech pattern impairments, impaired reality testing with 'lack of insight', may be responding to hallucinatory or delusional thoughts or both, which may be accompanied by hostility.
Paranoia	Delusions of a persecutory nature – being followed, poisoned, or harmed in some way. Ideas of reference – the belief that people are talking about you. May be accompanied by extreme fear, agitation or hostility.
Chronic hallucinations	Known history of hallucinations with no recent change in nature, and/or frequency, or in patient's level of distress related to them.
Chronic, non-urgent condition	Patient is well known to the ED and triage nurse with a recurrent complaint that has either been fully dealt with, or patient is just looking for food, warmth or temporary shelter.
<i>Bizarre behaviour definitions</i>	
Uncontrolled	Bizarre, disoriented or irrational behaviour, not controlled by verbal communication and reasoning, and placing the patient or others in physical danger.
Controlled	Bizarre, irrational behaviour that is viewed as threatening but controllable through verbal support and reasoning; patient is accompanied by a friend or family member.
Harmless behavior	Bizarre or eccentric behavior (usually long standing with no recent change from the patient's norm) that is of no threat to the patient or others and requires no acute intervention.

Adapted from: Bullard, M., Unger B, Spence J, Grafstein E. Revisions to the Canadian Emergency Department Triage and Acuity Scale (CTAS) Adult Guidelines. Can J Emerg Med 2008; 10(2);136-142.

4.4 Potential Triage Pitfalls

- Not recognizing hemodynamic compromise in children with reasons to be hypovolemic or hypotensive
- Not appreciating the dangers of complaints in the perineal region or limb complaints of pain or swelling (especially deep space infections)
- Not recognizing the possibility that a mental health presentation can be as acute or dangerous as a medical or surgical one
- Not considering new onset bizarre behaviour as an acute medical problem (ie. Acute delirium)
- Not assessing neurovascular status of distal limb in patients presenting with limb pain or injury
- Letting negative feelings about a patient influence the acuity score assigned
- Mistaking patient fears (“I can’t breathe”; “I’m going to die”) without physiologic findings, as being simple anxiety

It is important for the learner to remember to never to feel pressured if considering the need to “uptriage” a patient. Sometimes it is necessary to “up triage” a patient to ensure patient safety, even though it may occasionally inappropriately prioritize one patient over another.

One must be cognizant of the fact that children maintain their blood pressure and vital signs until a sudden precipitous drop into shock. If the triage nurse thinks there is suggestion of significant volume loss, internal bleeding, cardiac disease, etc. do not have the child wait, move them immediately into an active treatment area.

Triaging patients with perineal complaints are a critical risk for triage nurses and patients as you do not get to view the area of concern. Historically necrotizing fasciitis or (Fournier’s disease in the perineum) is seen most frequently in diabetics, however, more recently we are seeing it in a broader population perhaps due to sexual preferences/behaviours, perhaps due to more patients with HIV or other reasons to be immunocompromised, and perhaps a greater incidence of virulent strains of bacteria. Another rare cause of necrotizing fasciitis is vibrio vulnificus from contaminated seafood or exposure to seawater through an open wound (so more common in fish handlers) which produces an infection usually requiring surgical debridement). Regardless of cause it is important to ask if there are any signs of “black” skin (if so = at least a level 2) by using “fever, immunocompromised” or “up triaging severe pain to acute central as level 2 “even if they don’t rate the pain higher than 7. These patients need to be seen by the physician in <15 mins even if stable as a 1 hour delay in these patients can change a 6 inch square area of debridement into an area 6-8 times as large.

Remember that there is a major risk for both triage nurses and emergency physicians in mis-triaging mental health/behavioural changes, due to the potential missed pathologies of greatest risk are brain related where behavioral changes due to an intracranial lesion (traumatic, vascular, or neoplastic) or a CNS infection or delirium (due to infection, drug interaction, or other metabolic causes) are ascribed to a mental health problem/deterioration and either triaged too low or left to wait for a mental health assessment only to leave without being seen or to be seen and then referred back for medical assessment, delaying early care.

4.5 CTAS Implementation in Rural Hospitals

Rural hospitals have a number of unique characteristics. Medical and nursing staffs are often in limited supply in rural hospitals across Canada. In order to ensure that overworked physicians are not required to see ‘non urgent’ patients within the time guidelines set out by the CTAS NWG, the Society of Rural Physicians of Canada Emergency (SRPC) ER Committee in 2002 published a statement about implementation of CTAS in the rural setting (CJRM 2002;7(4): 271-4). The Substantive difference from the original CTAS implementation guidelines was the inclusion of a ‘Protocol for CTAS Level 5 patients that would allow a trained registered nurse, without contacting the on-call physician, to refer patients to more

appropriate service provider or defer care to a later time. This was intended for those hospitals without on-site duty Emergency Physicians in order to optimize the use of limited physician resources without jeopardizing patient safety. Some members of NENA expressed concerns that this policy may leave nurses liable in the event of an adverse patient outcome. In 2007 the SRPC-ER revised the criteria that needed to be met before the implementation of such a medical directive to include the following:

1. ED physicians may not be on-site
2. There is a protocol for ambulances to call ahead when patients are Level 1 or level 2
3. Nursing staff can initiate resuscitation
4. Physician-directed care may be provided in person, by telephone or by medical directives

Level 5 patients may be deferred to another time or place if:

1. Patient is 6 months of age or older
2. Vital signs are deemed satisfactory by the nurse and temperature is 35°C- 38.5°C (38.3°C for age > 60 years)
3. After the nursing assessment, there is no clinical indication that the patient may require urgent physician attention
4. Where the nurse is unsure, telephone consultation with the physician has determined that the problem is non-urgent
5. Appropriate hospital policies and medical directives are in place
6. There is agreement between medical and nursing staff to accept the process.

**Adapted from: CAEP and SRPC Position Statement-Rural Implementation of CTAS; Society of Rural Physicians of Canada Emergency Committee Working Group 2002 (Stobbe K, Dewar D, Thornton C, et al. Canadian Emergency Department Triage and Acuity Scale (CTAS): Rural Implementation Statement. CJEM 2003 Mar;5(2):104-7) and the 2007 revised statement posted on the SRPC website at <http://www.srpc.ca/>.*

****Both NENA and CAEP stress the importance of rural institutions having formal policies and protocols in place prior to accepting these processes.**

APPENDICES

Appendix A: Acknowledgements

The CTAS National Working Group wants to thank the many contributions of the representatives of the 5 member associations who over the years have endorsed and whose volunteers have assisted in the development, implementation, education, and research related to the Canadian Triage and Acuity Scale (CTAS).

Canadian Association of Emergency Physicians (CAEP)
National Emergency Nurses' Affiliation (NENA)
L'Association Des Médecins D'urgence du Québec (AMUQ)
Canadian Paediatric Society (CPS)
Society of Rural Physicians of Canada (SRPC)

The CTAS NWG also wishes to recognize the importance of the key CTAS development papers and the contributions of the authors.

1. Canadian Emergency Department Triage and Acuity Scale: Implementation Guidelines. Can J Emerg Med 1999;1(3 suppl):S2-28. Robert Beveridge, Barbara Clark, Laurie Janes, Nancy Savage, Jim Thompson, Graham Dodd, Michael Murray, Cheri Nijsen Jordan, David Warren, Alain Vadeboncoeur, Louise LeBlanc
2. Canadian Paediatric Triage and Acuity Scale: Implementation Guidelines for Emergency Departments. CJEM 2001;3(4 suppl):S1-27. Anna Jarvis, David Warren, Louise LeBlanc
3. Canadian Emergency Department Information System (CEDIS) Presenting Complaint List (Version 1.0). CJEM 2003;5(1):27-34. Eric Grafstein, Bernard Unger, Michael Bullard, Grant Innes
4. Revisions to the Canadian Emergency Department Triage and Acuity Scale Implementation Guidelines. CJEM 2004;6(6):421-7. Michael Murray, Michael Bullard, Eric Grafstein

The CTAS NWG also wants to thank all the authors and contributors from the Education Sub Committee for their work developing the Adult CTAS and Paediatric CTAS provider course materials and spearheading the implementation and dissemination of the courses and developing a cadre of CTAS Instructors. This work led to and finally culminated in the development of this new combined Adult-Paediatric CTAS provider course and materials.

NENA members: Carla Policicchio, Debbie Cotton, Valerie Eden, Jerry Bell, Louise LeBlanc

2011 Revisions: Colleen Brayman, Traci Foss-Jeans, Joy McCarron

CAEP members: Michael Murray, Andrew Affleck, Michael Bullard

2011 Revisions: Michael Bullard, Tom Chan, David Warren

CPS members: David Warren, Anna Jarvis

SRPC member: Trina Larsen Soles, Jill Konkin

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Appendix B: CEDIS Presenting Complaints List

Canadian Emergency Department Information System (CEDIS)
Presenting Complaint List Version 1.1

By System:

CARDIOVASCULAR (CVS)

Bilateral leg swelling / edema
Cardiac arrest (non traumatic)
Cardiac arrest (traumatic)
Chest pain (cardiac features)
Chest pain (non cardiac features)
Cool pulseless limb
Edema, generalized
General weakness
Hypertension
Palpitations / irregular heart beat
Syncope / pre-syncope
Unilateral reddened hot limb

ENT – EARS (EENT)

Discharge, ear
Earache
Ear Injury
Foreign body, ear
Loss of hearing
Tinnitus

ENT – MOUTH, THROAT, NECK (EENT)

Dental / gum problem
Difficulty swallowing / dysphagia
Facial pain (non-traumatic / non-dental)
Facial trauma
Neck swelling / pain
Neck trauma
Sore throat

ENT – NOSE (EENT)

Epistaxis
Foreign body, nose
Nasal congestion / hay fever
Nasal trauma
URTI complaints

ENVIRONMENTAL (ENV)

Chemical exposure
Electrical injury
Frostbite / cold injury
Hypothermia
Noxious inhalation
Near drowning

GASTROINTESTINAL (GI)

Abdominal mass / distention
Abdominal pain
Anal / rectal trauma
Anorexia

Blood in stool / melena
Constipation
Diarrhea
Feeding difficulties in the newborn
Foreign body in rectum
Groin pain / mass
Hiccoughs
Jaundice
Neonatal jaundice
Oral / esophageal foreign body
Rectal / perineal pain
Vomiting and / or nausea
Vomiting blood

GENITOURINARY (GU)

Flank pain
Genital discharge / lesion
Genital trauma
Hematuria
Oliguria
Penile swelling
Polyuria
Scrotal pain and / or swelling
Urinary retention
UTI complaints

MENTAL HEALTH (MH)

Anxiety / situational crisis
Bizzare / behaviour
Concern for the patient's welfare
Depression / suicidal / deliberate self harm
Hallucinations / delusions
Insomnia
Paediatric disruptive behaviour
Social problem
Violent / homicidal behaviour

NEUROLOGIC (CNS)

Altered level of consciousness
Confusion
Extremity weakness / symptoms of CVA
Floppy child
Gait disturbance / ataxia
Head injury
Headache
Seizure
Sensory loss / parasthesias
Tremor
Vertigo

OB – GYN (OB - GYN)

Foreign body, vagina
Labial swelling
Menstrual problems
Pregnancy issue < 20 weeks
Pregnancy issue >20 weeks
Sexual assault
Vaginal bleeding
Vaginal discharge
Vaginal pain / itch

OPHTHALMOLOGY (OPTH)

Chemical exposure, eye
Diplopia
Eye pain
Eye trauma
Foreign body, eye
Red eye / discharge
Periorbital swelling
Photophobia
Re-check eye
Visual disturbance

ORTHOPEDIC (ORTHO)

Amputation
Back pain
Cast check
Joint(s) swelling
Lower extremity injury
Lower extremity pain
Paediatric gait disorder / painful walk
Traumatic back / spine injury
Upper extremity injury
Upper extremity pain

RESPIRATORY (RESP)

Allergic reaction
Apneic spells in infants
Cough / congestion
Hemoptysis
Hyperventilation
Respiratory arrest
Respiratory foreign body
Shortness of breath
Stridor
Wheezing – no other complaints

SKIN (SKIN)

Abrasion
Bite
Blood and body fluid exposure
Burn
Cyanosis

Foreign body, skin
Laceration / Puncture
Localized swelling / redness
Lumps, bumps, calluses
Other skin conditions
Pruritis
Rash
Redness / tenderness, breast
Removal staples / stitches
Rule out infestation
Spontaneous bruising
Sting
Wound check

SUBSTANCE MISUSE (SUBST)

Overdose ingestion
Substance misuse/Intoxication
Substance withdrawal

TRAUMA (T)

Isolated abdominal trauma – blunt
Isolated abdominal trauma – penetrating
Isolated chest trauma – blunt
Isolated chest – penetrating
Major trauma – blunt
Major trauma – penetrating

GENERAL & MINOR (GEN)

Abnormal lab values
Congenital problems in children
Direct referral for consultation
Dressing change
Exposure to communicable disease
Fever
Hyperglycemia
Hypoglycemia
Imaging tests
Inconsolable crying in infants
Medical device problem
Minor complaints NOS
Newly born
Pallor / Anemia
Postoperative complications
Prescription / Medication request
Ring removal

Appendix C: Glasgow Coma Scale (GCS)

The Glasgow Coma Scale (GCS) was developed in the 1970's as a tool to assess neurological injuries in trauma. The tool evaluates eye opening, verbal response and motor response. The values assigned in the checklist below are summed. The lowest score is 3; the maximum is 15. Patients at triage are categorized as: unconscious 3 - 9, altered 10 -13 or normal 14 -15. A GCS of 10 -13 indicates neurological dysfunction and assists in making the determination of triage code. A score of 3 - 9 indicates significant injury or loss of function and automatically places the patient in the CTAS category level 1-resuscitation. Patients with dementia, cognitive impairment or chronic neurologic dysfunction make the use of the score difficult. Attempt to determine a baseline function and assess if there is any change from the patients norm.

Glasgow Coma Scale (GCS) Score

For eye opening, verbal response and motor response, check the statement that best describes the patient's level of functioning. To obtain the GCS score, sum the value of each statement.

Adult Coma Scale

Activity	Best Response	Score
Eye Opening	Spontaneous	4
	To verbal stimuli	3
	To painful stimuli	2
	None	1
Verbal	Orientated	5
	Confused	4
	Inappropriate words	3
	Nonspecific sounds	2
	None	1
Motor	Follows commands	6
	Localizes pain	5
	Withdraws to pain	4
	Abnormal flexion to pain	3
	Extension to pain	2
	None	1

Teasdale, G., & Jennett, B. (1974). Assessment of coma and impaired consciousness: a practical scale. *Lancet*, 304(7872), 81-84. doi: 10.1016/S0140-6736(74)91639-0

Appendix D: Paediatric Coma Scale

		Observation		
Function	Score	Age > 1 year		Age < 1 year
Eye Opening	4	Spontaneously		Spontaneously
	3	To verbal command		To shout
	2	To pain		To pain
	1	No response		No response
Function	Score	Age > 1 year		Age < 1 year
Best Motor Response	6	Obeys		Spontaneously
	5	Localizes pain		Localizes pain
	4	Flexion-withdrawal		Flexion-withdrawal
	3	Flexion-abnormal (decorticate rigidity)		Flexion-abnormal (decorticate rigidity)
	2	Extension (decorticate rigidity)		Extension (decorticate rigidity)
	1	No response		No response
Function	Score	Age > 5 years	Age 2 to 5 years	Age 0 to 23 months
Best Verbal Response	5	Oriented and converses	Appropriate words/phrases	Smiles and coos appropriately
	4	Disoriented and converses	Inappropriate words	Cries and is consolable
	3	Inappropriate words	Persistent cries and/screams	Persistent, inappropriate crying and/or screaming
	2	Incomprehensible sounds	Grunts	Grunts, agitated, and restless
	1	No response	No response	No response

Emergency Nurses Association ENPC provider manual: 2nd edition (1998)

Appendix E: Temperature Measurement

The method of measuring temperature differs by age group and the type of thermometer has different normal ranges as identified in the tables below. Rectal temp is recommended for all children under the age of 2 but not for a child who is immunocompromised. Check your hospital's policy to determine which to use.

Age	Recommended Technique	
3 months to 2 years	First choice:	Rectal (definitive)
	Second choice:	Axillary (screening)
Over 2 years to 5 years	First choice:	Rectal
	Second choice:	Ear
	Third choice:	Axillary
Older than 5 years	First choice:	Oral
	Second choice:	Ear
	Third choice:	Axillary

Measurement Method	Normal Temperature Range	
Rectal	36.6°C - 38°C	(97.9°F – 100.4°F)
Oral	35.5°C – 37.5°C	(95.9°F – 99.5°F)
Ear	35.8°C - 38°C	(96.4°F – 100.4°F)
Axillary	34.7°C – 37.3°C	(94.5°F – 99.1°F)

Adapted from Tables 1 and 2 of; Community Paediatrics Committee, Canadian Paediatrics Society (CPS). Temperature measurements in paediatrics (position statement), Paediatric Child Health 2000;5(5):ref no CP00-01.

Appendix F: Paediatric Pain Scales

Pain Word Scale

Description:

The 4-point word scale is a self-report tool that is useful when assessing procedural, acute and chronic pain.

Patient Population:

Preschool children. May also be useful in order children who are unable to use more complicated scales, such as the Faces Pain Scale – revised, or the Numerical Rating Scale. Children need to understand the concepts of classification and seriation. They must also have the sufficient language comprehension & production, and understanding of emotional states.

Instructions:

Ask the child to classify his/her pain into one of four categories: “none”, “a little”, “medium” or “a lot”.

“How much hurt/sore/pain are you having – none, a little, a medium, or a lot?”

0 – 10 Numerical Rating Scale (NRS)

Description:

The Numerical Rating Scale (NRS) is a self-report tool that is useful when assessing procedural, acute and chronic pain.

Patient Population:

School aged children and adolescents. Children must be capable of counting up to 10 and understand the concepts of classification and seriation. They must also have sufficient language comprehension & production, and understanding of emotional states.

Instructions:

Ask the child/adolescent to assign a number to his/her pain with 0 representing no pain/hurt and 10 representing the worst pain ever.

“If 0 is no pain or hurt and 10 is the worst pain imaginable, how much pain or hurt are you having now?”

Faces Pain Scale – Revised

Description:

The Faces Pain Scale – revised (FPS-R) is a self-report tool that is useful when assessing procedural, acute and chronic pain.

Patient Population:

Preschool and school aged children. Children need to understand the concepts of classification and seriation. They must also have sufficient language comprehension & production, and understanding of emotional states.

Instructions:

Ask the child to indicate which face indicates how much hurt or pain they are feeling. Do not use words like 'happy' and 'sad'. This scale is intended to measure how children feel inside, not how their face looks.

“These faces show how much something can hurt. This face {point to left-most face} shows no pain. The faces more and more pain {point to each from left to right} up to this one {point to right-most face} – it shows very much pain. Point to the face that shows how you hurt {right now}”



Score the chosen face 0, 2, 4, 6, 8, 10 counting left to right so 0 =no pain and 10 = very much pain.

FLACC

Description:

The FLACC is a behavioural observational tool for acute pain.

Patient population:

Infants, toddlers, preschool children; and may also be useful for cognitively impaired children & adolescents.

Instructions:

Observe infant/child, and note score for each category. Sum of all categories will give score out of maximum 10.

Categories	0	1	2
Face	No particular expression or smile	Occasional grimace or frown, withdrawn, disinterested	Frequent to constant quivering chin, clenched jaw
Legs	Normal position or relaxed	Uneasy, restless, tense	Kicking or legs drawn up
Activity	Lying quietly, normal position, moves easily	Squirming, shifting back and forth, tense	Arched, rigid or jerking
Cry	No cry (awake or asleep)	Moans or whimpers, occasional complaint	Crying steadily, screams or sobs, frequent complaints
Consolability	Content, relaxed	Reassured by occasional touching, hugging or being talked to, distracted	Difficult to console or comfort
TOTAL SCORE:			

Reference

Merkel, S.L., Voepel-Lewis, T., Shayeviz, J.R., & Malviya, S. The FLACC: A behavioral scale for scoring postoperative pain in young children. Paediatric Nursing 1997;23: 293-297.

Appendix G: Normal Vitals and Standard Deviations

Children triaged as CTAS 1 (Resuscitation) or CTAS 2 (Emergent) should never be delayed at triage to complete history or measurement of vital signs to confirm their triage level.

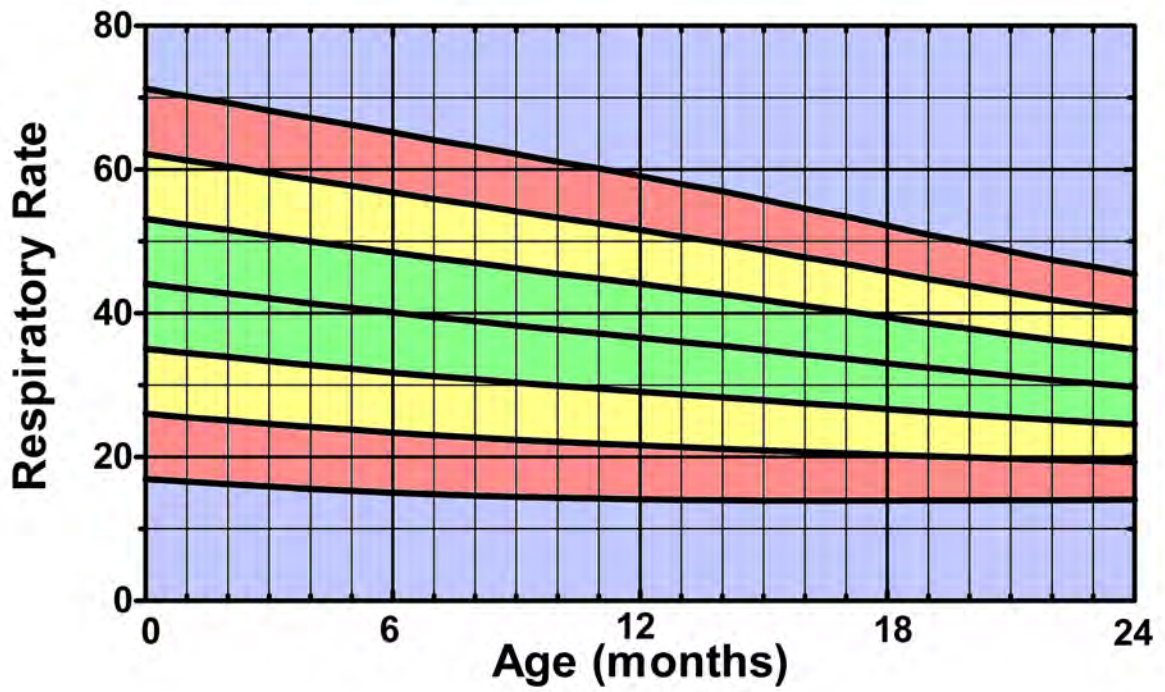
*These tables and graphs are provided as reference guidelines to assist in the assignment of an appropriate triage score, however, they should be applied consistent with the definitions for **severe**, **moderate**, and **mild** respiratory distress; and **shock** and **hemodynamic compromise**, as previously learnt, before making a final decision.*

Strongly recommended to post these charts in all triage and assessment areas.
(When in doubt – triage up!)

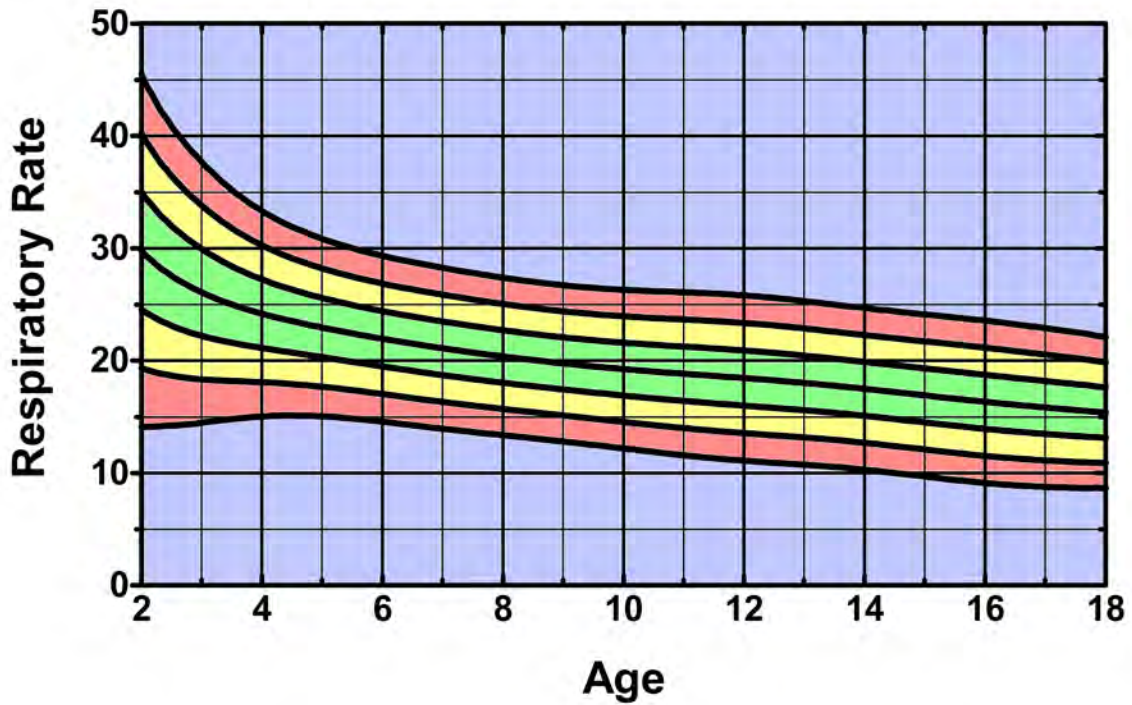
Respiratory Rate

Age	Lev 1	Level 2	Level 3	Level 4 & 5	Level 3	Level 2	Lev 1
0	<	17 < -	26 < -	35 - 53	- > 62	- > 71	>
3 mon	<	16 < -	25 < -	33 - 51	- > 60	- > 68	>
6 mon	<	15 < -	23 < -	32 - 48	- > 57	- > 65	>
9 mon	<	14 < -	22 < -	30 - 46	- > 54	- > 62	>
12 mon	<	14 < -	22 < -	29 - 44	- > 52	- > 59	>
15 mon	<	14 < -	21 < -	28 - 42	- > 49	- > 56	>
18 mon	<	14 < -	20 < -	27 - 39	- > 46	- > 52	>
21 mon	<	14 < -	20 < -	26 - 37	- > 43	- > 49	>
24 mon	<	14 < -	19 < -	25 - 35	- > 40	- > 45	>
3 yr	<	14 < -	18 < -	22 - 30	- > 34	- > 38	>
4	<	15 < -	18 < -	21 - 24	- > 30	- > 33	>
5	<	15 < -	18 < -	20 - 23	- > 28	- > 31	>
6	<	15 < -	17 < -	19 - 22	- > 27	- > 29	>
7	<	14 < -	16 < -	19 - 21	- > 26	- > 28	>
8	<	13 < -	16 < -	18 - 20	- > 25	- > 27	>
9	<	13 < -	15 < -	17 - 20	- > 24	- > 27	>
10	<	12 < -	15 < -	17 - 19	- > 24	- > 26	>
11	<	12 < -	14 < -	16 - 19	- > 24	- > 26	>
12	<	11 < -	14 < -	16 - 18	- > 23	- > 26	>
13	<	11 < -	13 < -	16 - 18	- > 23	- > 25	>
14	<	10 < -	13 < -	15 - 17	- > 22	- > 25	>
15	<	10 < -	12 < -	15 - 17	- > 22	- > 24	>
16	<	9 < -	12 < -	14 - 16	- > 21	- > 24	>
17	<	9 < -	11 < -	13 - 16	- > 21	- > 23	>
18	<	9 < -	11 < -	13 - 15	- > 20	- > 22	>

CTAS Respiratory Rate Age 0 - 2



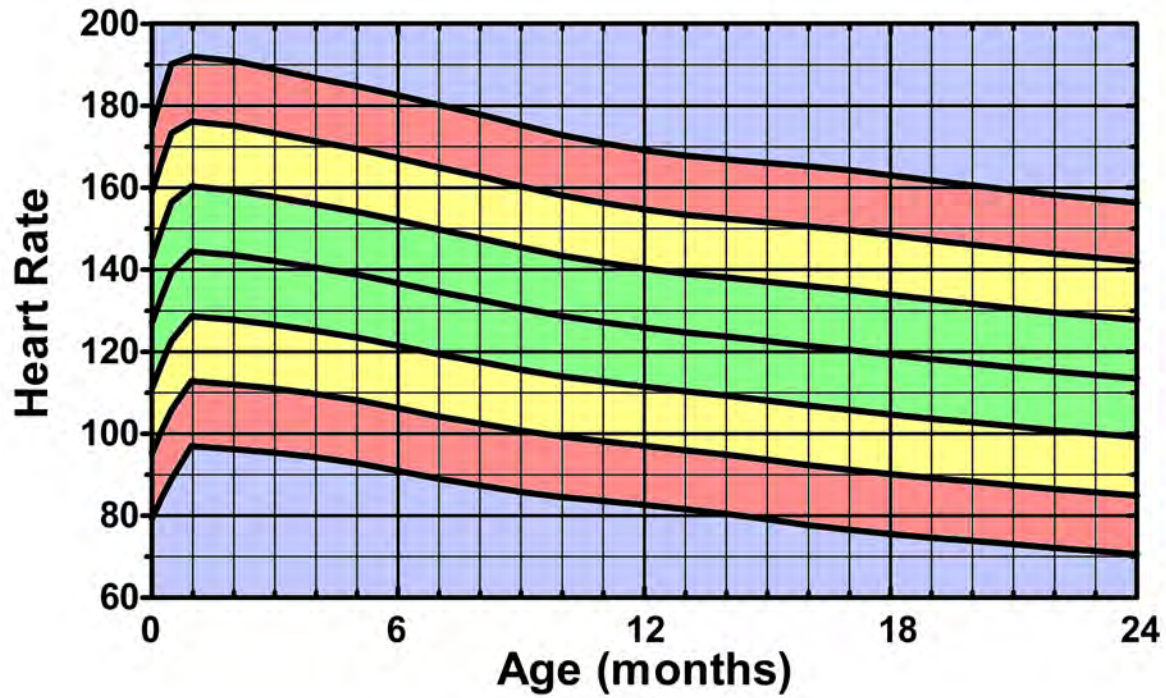
CTAS Respiratory Rate Age 2-18



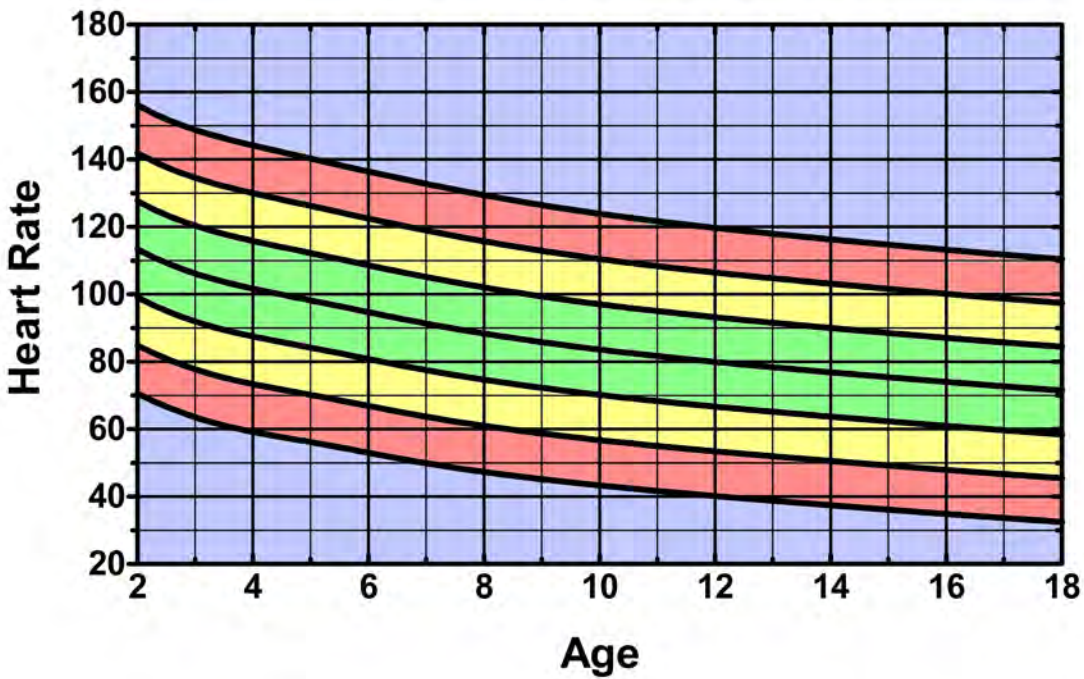
Heart Rate

Age	Lev 1	Level 2	Level 3	Level 4 & 5	Level 3	Level 2	Lev 1
0	<	79 < -	95 < -	111 - 143	- > 159	- > 175	>
3 mon	<	95 < -	111 < -	127 - 158	- > 173	- > 189	>
6 mon	<	91 < -	106 < -	121 - 152	- > 167	- > 183	>
9 mon	<	86 < -	101 < -	116 - 145	- > 160	- > 175	>
12 mon	<	83 < -	97 < -	111 - 140	- > 155	- > 169	>
15 mon	<	79 < -	94 < -	108 - 137	- > 152	- > 166	>
18 mon	<	76 < -	90 < -	105 - 134	- > 148	- > 163	>
21 mon	<	73 < -	87 < -	102 - 131	- > 145	- > 159	>
24 mon	<	71 < -	85 < -	99 - 128	- > 142	- > 156	>
3 yr	<	64 < -	78 < -	92 - 120	- > 135	- > 149	>
4	<	59 < -	73 < -	88 - 116	- > 130	- > 144	>
5	<	56 < -	70 < -	84 - 112	- > 126	- > 140	>
6	<	53 < -	67 < -	81 - 109	- > 123	- > 136	>
7	<	50 < -	64 < -	78 - 105	- > 119	- > 133	>
8	<	47 < -	61 < -	75 - 102	- > 116	- > 129	>
9	<	45 < -	59 < -	72 - 99	- > 113	- > 126	>
10	<	43 < -	57 < -	70 - 97	- > 110	- > 124	>
11	<	42 < -	55 < -	68 - 95	- > 108	- > 122	>
12	<	40 < -	53 < -	67 - 93	- > 106	- > 120	>
13	<	39 < -	52 < -	65 - 92	- > 105	- > 118	>
14	<	37 < -	51 < -	64 - 90	- > 103	- > 116	>
15	<	36 < -	49 < -	62 - 89	- > 102	- > 115	>
16	<	35 < -	48 < -	61 - 87	- > 100	- > 113	>
17	<	34 < -	47 < -	60 - 86	- > 99	- > 112	>
18	<	33 < -	45 < -	58 - 85	- > 97	- > 110	>

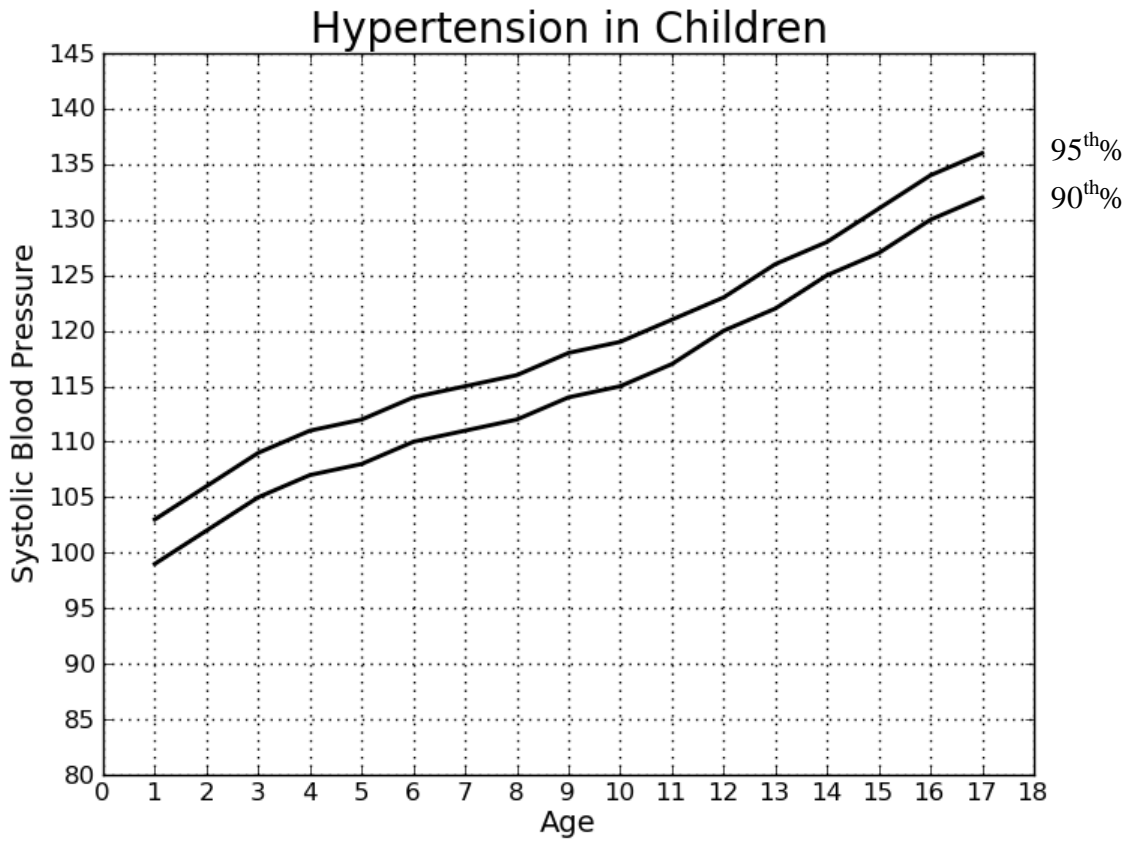
CTAS Heart Rate Age 0-2



CTAS Heart Rate Age 2 - 18



Reference: Susannah Fleming, Matthew Thompson, Richard Stevens, Carl Heneghan. Normal ranges of heart rate and respiratory rate in children from birth to 18 years of age: a systematic review of observational studies. The Lancet. Mar19-25,2011.Vol.377,Issue 9770; pg.1011-1019.



Borderline Hypertension = 90th percentile for age
Hypertension = 95th percentile for age

Referenced to: 50th percentile height for age child from The Fourth Report on the Diagnosis, Evaluation and treatment of High Blood Pressure I Children and Adolescents. Pediatrics 2004;114: 555-576.