Module 3 - Objectives

- 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 specific modifiers
Triage Guidelines for Paediatrics

- Apply to:
  - Children from birth up to and including adolescents (age 16)
  - Challenged and technologically dependent individuals older than 16 years of age

*Hospital policies on paediatric ages vary*
Compare Adult & Paediatric Triage

What is the same?

- Triage process
- Five CTAS levels
- Triage decision--based on critical first look assessment, presenting complaint and application of modifiers

What is different?

- Paediatric assessment techniques and method of interviewing are age specific
- Paediatric specific modifiers
CTAS Five Level Triage

Level 1 - Resuscitation

Level 2 - Emergent

Level 3 - Urgent

Level 4 - Less Urgent

Level 5 - Non-Urgent
The Triage Process

Critical Look - rapid visual assessment PAT

Infection Control

Presenting Complaint

1\textsuperscript{st} Order Modifiers

2\textsuperscript{nd} Order Modifiers - complaint-based

CTAS Level – Assign Triage Level

Reassessment
How Does Paediatric Triage Differ from Adults?

- First look is based on the Paediatric Assessment Triangle (PAT) (across the room assessment)
- Anatomic and physiologic assessment for paediatrics differ
- Significance of presenting complaints/symptoms differ
- Symptom reports may not accurately reflect the child’s condition
- Significant impact of age/development and psychosocial considerations
Special Paediatric Considerations

Psycho-social, anatomical and physiological differences.

*Other special circumstances may include:*
- Prematurity
- Congenital anomalies
- Metabolic disease
- Technology dependent children
- Developmentally challenged children
- Child maltreatment
Anatomical Differences

- Relatively large head
- Smaller airway
- Breathing patterns vary with age
- Smaller size
- Weight dependent therapy
Physiologic Differences

- Immature immune system
- Increased metabolic rates
- Increased Body Surface Area (BSA)
- Smaller circulating blood volume
- Higher body fluid volume
- Kidneys unable to concentrate urine
- Heart rates vary with age
# Psycho-Social Differences

<table>
<thead>
<tr>
<th>Age</th>
<th>Likes/Dislikes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 1</td>
<td>Likes cuddling, soother, music, to be wrapped in a blanket</td>
</tr>
</tbody>
</table>
| 1 - 3| Likes bubbles, distract and play during exam  
       | Fears separation |
| 3 – 5| Likes stickers, games during exam  
       | Take words literally |
| 5 -12| Like to be involved, touch equipment, given choices, explanations. They fear pain and disfigurement |
| 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 based on parents perception/feedback |
Psycho-Social 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?
  - Is what you hear and see the same?
Critical Look - Tips

- Sleeping babies are the same as unconscious babies!!!

- Wake them up!

- Child’s head and torso need to be observed!
Critical Look - General Appearance

- Alert and responsive?
- Interacting with caregiver?
- Normal skin colour, eyes, general appearance?
- Is there speech or crying?
- Dressed appropriately for the weather?
- Content or consolable?
Change in Behaviour

- Important to recognize & interpret in preverbal infants
  - rejecting feeds, general disinterest, lethargy, unexplained irritability, loss of tone
  - **ALL** are very worrisome, should be triaged level 2 or higher based on Critical Look
  - may represent sepsis, metabolic disorder, pain disorder, toxin, child maltreatment
Critical Look - Work of Breathing

- Assess respiratory rate
- Assess respiratory effort
- Listen for adventitious sounds

A marked decrease in respiratory effort may signal a life threatening situation
Critical Look - Circulation

- Look at the skin for colour
- Check for uncontrolled bleeding
- Note signs of dehydration
  - sunken fontanelles or eyes
  - recent weight loss
  - dry mucous membranes, absent tears
  - skin mottling
- Assess level of consciousness
Assessment Tips

- Wake sleeping babies - consider them the same as unconscious babies!
- Interview before you touch the child
- Listen to parents/caregivers
- Check caregiver’s perception of illness
- Do most invasive examination at end of assessment
Infection Control

- After the ‘Critical Look’ stable patients need a risk assessment for communicable disease
  - Droplet precautions for the very young = isolation
  - Older children can wear a mask
  - Children with rash also present a high risk, especially with conflicting parental attitudes towards immunizations
  - Challenge to find enough isolation rooms
Paediatric Presenting Complaints

- Common childhood presentations differ from adults
- Symptoms reported may not accurately reflect the child’s condition
- For complete paediatric symptom list see Appendix: CEDIS Presenting Complaints
Common Presenting Complaints

- Five common paediatric presenting complaints:
  - Fever
  - Respiratory difficulties
  - Vomiting and/or diarrhea (dehydration)
  - Injuries
  - Change in behaviour
<table>
<thead>
<tr>
<th>Complaint Category</th>
<th>New Complaint</th>
</tr>
</thead>
<tbody>
<tr>
<td>GASTROINTESTINAL</td>
<td>Oral/Esophageal foreign body*</td>
</tr>
<tr>
<td></td>
<td>Feeding difficulties in newborn</td>
</tr>
<tr>
<td></td>
<td>Neonatal jaundice</td>
</tr>
<tr>
<td>MENTAL HEALTH</td>
<td>Concern for patient’s welfare*</td>
</tr>
<tr>
<td></td>
<td>Paediatric disruptive behaviour</td>
</tr>
<tr>
<td>ORTHOPEDIC</td>
<td>Paediatric gait disorder/painful walk</td>
</tr>
<tr>
<td>NEUROLOGIC</td>
<td>Floppy child</td>
</tr>
<tr>
<td>RESPIRATORY</td>
<td>Stridor</td>
</tr>
<tr>
<td></td>
<td>Wheezing - no other complaints</td>
</tr>
<tr>
<td></td>
<td>Apneic spells in infants</td>
</tr>
<tr>
<td>GENERAL &amp; MINOR</td>
<td>Congenital problems in children</td>
</tr>
<tr>
<td></td>
<td>Newly Born</td>
</tr>
</tbody>
</table>

* Also applicable to adults
<table>
<thead>
<tr>
<th>Age Group</th>
<th>Technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant</td>
<td>Ask the caregiver questions. Interview child in caregiver’s arms. Do invasive procedures such as temperature measurement last.</td>
</tr>
<tr>
<td>Toddler</td>
<td>Observe child in the caregiver’s arms. Note the way child plays and interacts. Do invasive procedures last.</td>
</tr>
<tr>
<td>Preschooler</td>
<td>Use age appropriate language for explanations. The child may participate in the history. Do invasive procedures last.</td>
</tr>
<tr>
<td>School Aged and Adolescents</td>
<td>Allow the child to participate by involving them in the interview, using age appropriate language. Privacy is very important for this age group.</td>
</tr>
<tr>
<td>C</td>
<td>Chief complaint</td>
</tr>
<tr>
<td>---</td>
<td>----------------</td>
</tr>
<tr>
<td>I</td>
<td>Immunizations/Isolation (contacts/travel)</td>
</tr>
<tr>
<td>A</td>
<td>Allergies</td>
</tr>
<tr>
<td>M</td>
<td>Medications</td>
</tr>
<tr>
<td>P</td>
<td>Past medical history/caregiver perception of illness</td>
</tr>
<tr>
<td>E</td>
<td>Events surrounding the illness or injury</td>
</tr>
<tr>
<td>D</td>
<td>Diet/diapers (intake and output)</td>
</tr>
<tr>
<td>S</td>
<td>Symptoms associated with the illness/injury</td>
</tr>
</tbody>
</table>
First Order Modifiers

**Vital Signs**
- Respiratory Distress
- Airway
- Breathing
- Hemodynamic Status
- Circulation
- Level of Consciousness
- Disability
- Temperature

**Other**
- Pain Score
- Bleeding Disorder
- Mechanism of Injury
Vital Signs: Physiologic Assessment

- Respiratory rate and effort
- Heart rate and perfusion
  - capillary refill
- Appearance/neurologic status
- Documentation at triage essential unless child immediately directed to treatment area
Vital Signs: 1st Order Modifiers

- Should be completed on all paediatric patients during their emergency visit
- Time & place vital signs are measured will depend on presentation
- Vary depending on age and development
- Must be considered with general appearance, in triage level assignment
- Level I and 2 patients have ‘abnormal vital signs’ - Level I patients have unstable, ‘abnormal vital signs’
Vital Signs in Acuity Determination

- Attempt to measure while child is quiet
- Normal vital signs vary individually
  - depending on age, development, & physiologic status
- Abnormal vital signs will determine CTAS level
- 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
Respiratory - Rate and Effort

- Measure respiratory rate
- Assess respiratory effort
- Listen and auscultate for:
  - stridor, grunting, wheezing, and adventitious sounds
- Use age based physiologic scales
- Look for preferred posture, drooling, dysphasia, abnormal sounds
<table>
<thead>
<tr>
<th>Level of Distress</th>
<th>Patient Description*</th>
<th>O₂ Saturation</th>
<th>CTAS Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe</td>
<td>Fatiguing from excessive work of breathing, cyanosis; lethargy, confusion, inability to recognize caregiver</td>
<td>&lt;90%</td>
<td>1</td>
</tr>
<tr>
<td>Moderate</td>
<td>Increased work of breathing, restlessness, anxiety, or combativeness</td>
<td>&lt;92%</td>
<td>2</td>
</tr>
<tr>
<td>Mild/Moderate</td>
<td>No obvious increased work of breathing, able to speak in sentences</td>
<td>92% - 94%</td>
<td>3</td>
</tr>
</tbody>
</table>

*Refer to manual for more complete definitions
CTAS Respiratory Rate Age 2-18
Oxygen Saturation Measurement

- Do not delay triage completion to do oxygen saturation measurement in a critically ill child
- Indications:
  - children with respiratory or cardiovascular symptoms
  - children with altered vital signs
- Use size appropriate equipment
- Consider geographical location (altitude)
Using CTAS – Respiratory

- Age 6 asthmatic, RR 28/min, indrawing
  - Critical look: moderate breathing distress
  - Vital signs: RR 28/min, HR 140/min, O$_2$ Sat 84% *

- Age 5, choked on peanut, RR 26/min coughing
  - Critical look: moderate breathing distress *
  - Vitals: RR 26/min, HR 120/min, O$_2$ Sat 96%
Circulatory - Heart Rate and Perfusion

- Measure heart rate
  - Tachycardia is an early response;
  - Bradycardia late

- Assess capillary refill

- Skin colour, temperature, moisture

- Check for uncontrolled bleeding

- Use age based physiologic scales
## Hemodynamic Stability

<table>
<thead>
<tr>
<th>Circulatory Status</th>
<th>CTAS level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Shock</strong>: Evidence of severe end-organ hypoperfusion, weak or thready pulses, absent peripheral pulses, hypotension, significant tachycardia or bradycardia, ineffective ventilation or oxygenation, decreased LOC. Possibly flushed, febrile, toxic, as in septic shock.</td>
<td>1</td>
</tr>
<tr>
<td><strong>Hemodynamic Compromise</strong>: Evidence of <em>borderline perfusion</em>: pale or mottled skin, tachycardia, delayed capillary refill, decreased urine production. Signs of dehydration not always reliable.</td>
<td>2</td>
</tr>
<tr>
<td>Vital signs outside the limits of normal.</td>
<td>3</td>
</tr>
<tr>
<td>Normal vital signs</td>
<td>4, 5</td>
</tr>
</tbody>
</table>
CTAS Heart Rate Age 0-2

Heart Rate

Age (months)
Using CTAS – Circulation

- Age 4, diabetic, vomiting and rapid breathing
  - Critical look: pale, effortless tachypnea
  - Vital signs: RR 60/min, HR 170/min*
  - CIAMPEDS – Insulin dependent diabetic, not tolerating fluids, recent weight loss

- Age 7 months, vomiting and diarrhea
  - Critical look: pink, active
  - Vital signs: RR 36/min, HR 170/min*
## Level of Consciousness

<table>
<thead>
<tr>
<th>Neurologic Status</th>
<th>GCS</th>
<th>CTAS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Unconscious:</strong> unable to protect airway, response to pain or loud noise only and without purpose, continuous seizure or progressive deterioration in level of consciousness.</td>
<td>3-9</td>
<td>1</td>
</tr>
<tr>
<td><strong>Altered</strong> level of consciousness: response inappropriate to verbal stimuli; loss of orientation to person, place or time (as age appropriate); altered behavior (such as irritable/agitated/inconsolable).</td>
<td>10-13</td>
<td>2</td>
</tr>
<tr>
<td><strong>Normal:</strong> other modifiers are used to define the CTAS level.</td>
<td>14-15</td>
<td>3, 4 or 5</td>
</tr>
</tbody>
</table>
Using CTAS- LOC

- Age 12, EMS reports he was thrown from bike, combative at the scene and now only responds to painful stimuli
  - Critical look: responds only to painful stimuli *
Fever

- Fever is one of the more common presenting complaints bringing children to the ED
- Temperature is used as a specific modifier in young infants and immunocompromised
- Vitals and other modifiers must be used to assign a triage level in older children
- Fever protocols for initial treatment, and reassessment should be utilized
### Paediatric Temperature Measurement

<table>
<thead>
<tr>
<th>Age</th>
<th>Recommended technique</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 days to 2 yrs</td>
<td>First choice: Rectal (definitive)</td>
</tr>
<tr>
<td></td>
<td>Second choice: Axillary (screening)</td>
</tr>
<tr>
<td>&gt;2 yrs - 5 yrs</td>
<td>First choice: Rectal</td>
</tr>
<tr>
<td></td>
<td>Second choice: Ear</td>
</tr>
<tr>
<td></td>
<td>Third choice: Axillary</td>
</tr>
<tr>
<td>&gt;5 yrs</td>
<td>First choice: Oral</td>
</tr>
<tr>
<td></td>
<td>Second choice: Ear</td>
</tr>
<tr>
<td></td>
<td>Third choice: Axillary</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age</th>
<th>Temperature</th>
<th>Descriptor</th>
<th>CTAS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 3mo</td>
<td>&gt;38.0 C</td>
<td>Immunocompromised (e.g. neutropenia, transplant, steroids)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>&lt;36.0 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Ages</td>
<td>&gt;38.0 C</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>&lt;36.0 C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt;3 mo to 3 yr</td>
<td>&gt;38.5C</td>
<td>Looks unwell</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Looks well</td>
<td>3</td>
</tr>
<tr>
<td>&gt;3 yr</td>
<td>&gt;38.5C</td>
<td>Looks unwell – consider RR and HR</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Looks well</td>
<td>4</td>
</tr>
</tbody>
</table>
Using CTAS - Fever

- Age 2 months* with fever 38.6°C, appears well
  - Pulse & respirations in normal range

- Age 8 years, sickle cell anaemia* with a fever 38.6°C, appears well
  - Pulse & respirations in normal range
Other 1\textsuperscript{st} Order Modifiers

- May be required to determine correct CTAS level, depending on presenting complaint and CIAMPEDS

- Pain
- Mechanism of injury
- Bleeding Disorder
Paediatric Pain Assessment

- Intense pain can be associated with benign processes (otitis media).
- Tachycardia, pallor, sweating and other physiological signs are useful in the evaluation of pain level.
- Past experience may influence the child’s reaction to illness or injury.
- The evaluation of pain is a subjective measurement. The accuracy of pain scales varies with age.
## Pain Assessment

<table>
<thead>
<tr>
<th>Severity &amp; Score*</th>
<th>Pain</th>
<th>CTAS Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe 8–10</td>
<td>Acute</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Chronic</td>
<td>3</td>
</tr>
<tr>
<td>Moderate 4–7</td>
<td>Acute</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Chronic</td>
<td>4</td>
</tr>
<tr>
<td>Mild 1–3</td>
<td>Acute</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>Chronic</td>
<td>5</td>
</tr>
</tbody>
</table>

* Chronic pain can be triaged one level lower if considered appropriate
## Non Verbal Pain Assessment

**Faces Pain Scale**  
Left to Right pain score 0, 2, 4, 6, 8, 10

<p>| | | | | | |</p>
<table>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>![Face 0]</td>
<td>![Face 2]</td>
<td>![Face 4]</td>
<td>![Face 6]</td>
<td>![Face 8]</td>
<td>![Face 10]</td>
</tr>
</tbody>
</table>

### FLACC
- behavioural observational tool for acute pain
- 10 point scoring system

### Key Concepts / Descriptors
- Infants with severe pain: ‘inconsolable’, ‘physiological distress’
- Infants with moderate pain: ‘consolable’, ‘no or limited physiological distress’
- Infants with mild pain: ‘easily distractible’, ‘no physiological distress’
## Bleeding Disorder

<table>
<thead>
<tr>
<th>Life or Limb Threatening Bleed</th>
<th>Moderate/Minor Bleed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CTAS level 2</strong></td>
<td><strong>CTAS level 3</strong></td>
</tr>
<tr>
<td>Head (intracranial) &amp; neck</td>
<td>Nose (epistaxis)</td>
</tr>
<tr>
<td>Chest, abdomen, pelvis, spine</td>
<td>Mouth (including gums)</td>
</tr>
<tr>
<td>Massive vaginal hemorrhage</td>
<td>Joints (hemarthroses)</td>
</tr>
<tr>
<td>Iliopsoas muscle &amp; hip</td>
<td>Menorrhagia</td>
</tr>
<tr>
<td>Extremity muscle compartments</td>
<td>Abrasions</td>
</tr>
<tr>
<td>Fractures &amp; dislocations</td>
<td>Superficial lacerations</td>
</tr>
<tr>
<td>Deep lacerations</td>
<td></td>
</tr>
<tr>
<td>Any uncontrolled bleeding</td>
<td></td>
</tr>
</tbody>
</table>

*Patients with bleeding disorders presenting with significant bleeds require rapid factor replacement or other relevant interventions. Therapy usually takes precedence over investigations.*

[www.hemophilia.ca/emergency](http://www.hemophilia.ca/emergency) [English] [www.hemophilia.ca/urgence](http://www.hemophilia.ca/urgence) [French]
LIFE OR LIMB-THREATENING BLEEDS
- Head (intracranial) and neck
- Chest, abdomen, pelvis, spine
- Iliopsoas muscle and hip
- Massive vaginal hemorrhage
- Extremity muscle compartments
- Fractures or dislocations
- Any deep laceration
- Any uncontrolled bleeding

MODERATE/MINOR BLEEDS
- Nose (epistaxis)
- Mouth (including gums)
- Joints (hemarthroses)
- Menorrhagia
- Abrasions and superficial lacerations

TREATMENT FOR LIFE OR LIMB-THREATENING BLEEDS

PATIENT MUST RECEIVE PRODUCT URGENTLY

Hemophilia A: (all severities)
Recombinant factor VIII concentrate 40-50 units/kg

Hemophilia B: (all severities)
Recombinant factor IX concentrate 100-120 units/kg (>15 yrs)
Recombinant factor IX concentrate 135-160 units/kg (<15 yrs)
The dosage for recombinant factor IX is substantially higher because of its faster recovery, particularly in children.

Von Willebrand Disease:
A WF factor containing factor VIII concentrate such as Humate-P 60-80 Urokinase cofactor units/kg

It is critical to raise the factor level to 80-100% urgently for all life or limb-threatening bleeds.

TREATMENT FOR MODERATE/MINOR BLEEDS

PATIENT MUST RECEIVE PRODUCT WITHIN 30 MINUTES WHENEVER POSSIBLE

Hemophilia A: (severe/moderate)
Recombinant factor VIII concentrate 20-30 units/kg

Hemophilia A: (mild)
Desmopressin (Octadren/DCAVI) 0.3 mcg/kg (max. 20 mcg) SC/IV

Hemophilia B: (severe/moderate/mild)
Recombinant factor IX concentrate 35-50 units/kg (>15 yrs)
Recombinant factor IX concentrate 50-70 units/kg (<15 yrs)
The dosage for recombinant factor IX is substantially higher because of its faster recovery, particularly in children.

Von Willebrand Disease:
Type 1 and Type 2A or 2B known to have used desmopressin safety and effectively – (Octadren/DCAVI) 0.3 mcg/kg (max. 20 mcg) SC/IV
For patients not responding to desmopressin (such as Type 3 or Type 2B) use Humate-P 40-60 Urokinase cofactor units/kg
For mucosal bleeds in all above add:
Transacemic Acid (Cylklopanex) 25 mg/kg po bid 1-7 days (contraindicated if hemorrhage)

Dosages are patient specific – these are general guidelines only. Round doses up to the nearest vial.
If the products listed are not available, please call the nearest Canadian Blood Services or Héma-Québec Centre.

Remember…

FactorFirst

PROMPT INFUSION will halt bleeding, minimize long-term complications and can save life. If bleeding persists, follow the guidelines for life or limb-threatening bleeds and call the:

Hemophilia Treatment Centre

Physician:

Date:

Nurse:

Day Phone:

Night Phone:

This treatment card is not intended to replace comprehensive guidelines developed by the Association of Hemophilia Clinics Directors of Canada (AHCD) www.ahcd.ca/publications.html

Use Universal Precautions

Patient Information:

Name: __________________________

Date of Birth: ____________________

Diagnosis: ________________________

Severity: ________________________

Level: __________________________

Response to desmopressin (DCAVI): [ ] no [ ] yes to __________ %

Inhibitors: [ ] no [ ] yes [ ] unknown

Other Medical Information: ________________________________

Recommended Treatment:

Product and Dose/kg for Life or Limb-threatening Bleeds:

Product and Dose/kg for Moderate/Minor Bleeds:

Date of Recommendation: __________

Signature of Physician ____________________________
GUIDELINES FOR EMERGENCY MANAGEMENT OF RARE BLEEDING DISORDERS

Remember...
Treat First

Prompt treatment will halt bleeding, minimize long-term complications and can save life. If bleeding persists, follow the guidelines for life or limb-threatening bleeds and call the:

Bleeding Disorder Treatment Centre

Hospital:

Physician:

Nurse:

Day Phone:

Night Phone:

Use Universal Precautions

Delay in the restoration of hemostasis to the patient with a rare bleeding disorder may be life or limb-threatening.

- Prompt triage and assessment.
- Determine the severity of the bleed.
- Recognize that bleeding in the head, spine, abdomen or pelvis may initially be occult and potentially life-threatening.
- Treat first and investigate later.
- Avoid invasive procedures such as arterial punctures unless the patient has received treatment.
- No IM injections and no ASA.
- The patient or guardian may be your most important resource, so do ask about specific treatment protocols.
- Contact the patient’s bleeding disorder treatment centre where a hematologist is always on call.
- Provide clear discharge instructions and arrange a follow-up plan or admit to hospital if necessary.

Life or limb-threatening bleeds
Patient must receive treatment urgently

- Head (intracranial) and neck
- Chest, abdomen, pelvis, spine
- Iliopsoas muscle and hip
- Massive vaginal hemorrhage
- Extremity muscle compartments
- Fractures or dislocations
- Any deep laceration
- Any uncontrolled bleeding

Moderate/minor bleeds
Patient must receive treatment within 30 minutes whenever possible

- Nose (epistaxis)
- Mouth (including gums)
- Joints (hemarthroses)
- Menorrhagia
- Abrasions and superficial lacerations
Mechanism of Injury

- Mechanism of injury itself can determine CTAS Level

- **High-risk** mechanism assigns a CTAS Level 2.

- Lower-risk mechanism patients have acuity determined using other modifiers
<table>
<thead>
<tr>
<th>MOI</th>
<th>CTAS Level 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Trauma</td>
<td>MVC:</td>
</tr>
<tr>
<td></td>
<td>MCC:</td>
</tr>
<tr>
<td></td>
<td>Pedestrian or bicyclist:</td>
</tr>
<tr>
<td></td>
<td>Fall: From &gt;3 ft (&gt;1 m) or 5 stairs</td>
</tr>
<tr>
<td></td>
<td>Penetrating injury</td>
</tr>
<tr>
<td></td>
<td>To high risk anatomical regions</td>
</tr>
<tr>
<td>Head Trauma</td>
<td>MVC:</td>
</tr>
<tr>
<td></td>
<td>Pedestrian: struck by vehicle</td>
</tr>
<tr>
<td></td>
<td>Fall: From &gt;3 ft (&gt;1 m) or 5 stairs</td>
</tr>
<tr>
<td></td>
<td>Assault: With blunt object</td>
</tr>
<tr>
<td>Neck Trauma</td>
<td>MVC:</td>
</tr>
<tr>
<td></td>
<td>MCC:</td>
</tr>
<tr>
<td></td>
<td>Fall: From &gt;3 ft (1 m) or 5 stairs</td>
</tr>
<tr>
<td></td>
<td>Axial load to the head</td>
</tr>
</tbody>
</table>
A 13 year old female jogger was hit by a car*: 
- arrives by ambulance, is uncomfortable and grimacing with pain.
- denies loss of consciousness, headache, or neck pain.
- complains of moderate abdominal pain (5/10) mostly left upper abdomen.
- Vital signs: RR 18/min, HR 102/min, BP 100/70, GCS 15.
- no obvious bony injuries, contusions arms
Definition 2nd 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
Second Order Modifiers

May up triage specific complaints over 1st order modifiers
- Glucose
- Blood Pressure

Complaints where 1st order modifiers have limited applicability

* **Module 4** focuses on 2nd order modifiers
Paediatrics - Blood Pressure

- Blood pressure is a late indicator of a serious circulatory volume problem.
- Important to measure in:
  - Known renal disease
  - Conditions associated with hypertension
  - Children on medications which may affect blood pressure
Hypertension in Children

Borderline Hypertension = 90th percentile for age
Hypertension = 95th percentile for age
<table>
<thead>
<tr>
<th>CEDIS Presenting Complaint</th>
<th>Blood Glucose Level</th>
<th>Symptoms</th>
<th>CTAS Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altered level of consciousness; Confusion; Hyperglycemia; Hypoglycemia</td>
<td>&lt;3mmol/L</td>
<td>Confusion, diaphoresis, behavioral change, seizure, infant &lt; 1 yr</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>None</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>&gt;18mmol/L</td>
<td>Dyspnea, dehydration, weakness</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>None</td>
<td>None</td>
<td>3</td>
</tr>
</tbody>
</table>
# Dehydration Severity

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

<table>
<thead>
<tr>
<th>Complaint</th>
<th>2nd order modifier</th>
<th>CTAS level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stridor</td>
<td>Airway compromise</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Marked stridor</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Audible stridor</td>
<td>3</td>
</tr>
<tr>
<td>Apneic spells in infants</td>
<td>Apneic episode on presentation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Recent spell consistent with apnea or respiratory compromise</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>History of spell consistent with apnea</td>
<td>3</td>
</tr>
<tr>
<td>Inconsolable crying in infants</td>
<td>Inconsolable infant - abnormal vital signs</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Inconsolable infant - vital signs stable</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Irritable but consolable</td>
<td>4</td>
</tr>
</tbody>
</table>

**Don’t forget 1st order modifiers may make 2nd order modifier redundant**
<table>
<thead>
<tr>
<th>Complaint</th>
<th>2nd order modifier</th>
<th>CTAS level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floppy child</td>
<td>No tone, unable to support head</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Limited/less than expected muscle tone</td>
<td>3</td>
</tr>
<tr>
<td>Paediatric gait disorder/ painful walk</td>
<td>Gait or limp problems with fever</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Walking with difficulty</td>
<td>4</td>
</tr>
<tr>
<td>Congenital problem in children</td>
<td>Conditions and protocol letters identifying concerns for rapid deterioration or need for immediate therapy</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Vomiting/diarrhea in a child with inherited metabolic disease, type 1 diabetes or adrenal insufficiency</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caregivers identifying need for care</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Stable child with congenital disease with potential for problems</td>
<td>4</td>
</tr>
</tbody>
</table>
## Selected 2nd Order Modifiers

<table>
<thead>
<tr>
<th>Presenting Complaint</th>
<th>Revised Modifier</th>
<th>CTAS level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extremity weakness / symptoms of CVA</td>
<td>time of onset of symptoms 4.5 hrs</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>&gt; 4.5 hrs or resolved</td>
<td>3</td>
</tr>
<tr>
<td>Difficulty swallowing / dysphagia</td>
<td>drooling or stridor</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>possible foreign body</td>
<td>3</td>
</tr>
<tr>
<td>Upper or Lower extremity injury</td>
<td>obvious deformity †</td>
<td>3</td>
</tr>
<tr>
<td>Respiratory foreign body OR Foreign body nose OR</td>
<td>*Button battery, no symptoms</td>
<td>3</td>
</tr>
<tr>
<td>Oral / esophageal foreign body</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not an immediate danger, however, caustic leaks can be serious
Reassessments

- Advise patients/parents/caregivers to return to triage if their condition changes while waiting.
- Reassess waiting patients 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
- Document reassessments & acuity changes - but never change the original CTAS Level.
Questions
Case Scenarios

1. Review your assigned case
2. Determine the triage level
3. Present your rationale
4. Confirm using COT
   - COT stands for Complaint Oriented Triage and refers to an electronic support reference freely available on the CAEP website
   - Created in power point, can be housed on any computer for quick reference
Case 1

- A 15 year old male was hit by a car and fell from his bicycle. He arrives by ambulance, is uncomfortable and grimacing with pain. He denies loss of consciousness, headache, or neck pain. There are no obvious bony injuries.
- He complains of severe abdominal pain (8/10) mostly left upper abdomen and splinting left chest.
- Vital Signs: RR 18, HR 110, BP 110/70, GCS 15.
Case 2

- A mother states that her 11 week old baby felt hot while breast feeding. She checked his temp with a fever strip and it read 38.2°C. He is perhaps slightly less active, but Mom has not noted anything else suspicious in his behaviour.

- At triage he looks well.

- RR 54, HR 185, T 38.2°C (same as at home).
Case 3

- A 6 year old presents 7 days post tonsillectomy with bleeding.
- At triage he is spitting blood into a basin. He looks pale.
- RR 28, HR 130, BP 100/70.
Case 4

- A mother arrives with an 18 month old infant who has experienced fever, vomiting and diarrhea for 2 days. At the after-hours clinic last evening she was told to continue Tylenol and oral fluids.
- This morning the child “looks sick.” The child has not voided overnight.
- RR 35, HR 150, Temp 39.4°C.
Case 5

- A 2 year old boy was running and fell on his face on the carpet.
- He did not lose consciousness and he cried immediately.
- He has a superficial abrasion on the tip of his nose, with no deformity or active bleeding noted.
- RR 26, HR 112, T 37.1°C
- He is in no distress and no complaints of pain.
- No history of bleeding disorder.
Case 6

- A 2 month old infant arrives with mother. He has had a “high” fever for 2 days and was given Tylenol with some effect. Yesterday the baby was irritable.
- Today the baby is not feeding and is sleepy.
- The baby looks unwell, floppy and makes no eye contact.
Case 7

- At 1400h a 2 year old arrives with a scalp laceration that occurred when he fell and hit his head on the edge of a coffee table.
- There is no active bleeding.
- The child cried immediately and there was no loss of consciousness.
- The child appears sleepy.
- RR 36, HR 148, BP 85/60.
Case 8

- The paramedics were dispatched to a home for a 3 month old who stopped breathing. No intervention was needed.
- Mother states she has an apnea monitor at home and has noted an increased number of alarms when the baby is asleep.
- At triage the baby is alert and sucking on a soother.
- She appears well and in no distress with VS normal for age.
Case 9

- A 4 year old daughter of Chinese immigrants presents with a history of vomiting bright red blood.
- She looks chronically ill and parents admit she has been slow to grow and often ill.
- She had no childhood vaccinations and has a distended abdomen.
- RR 24, HR 112, BP 96/68.
An 11 year old is brought in by his mother because of pain and swelling of his left scrotum. The boy reports pain started at lunch time and has become progressively worse. The boy is crying with pain and walking with difficulty.

RR 18, HR 90
Case 11

- A 7 year old boy is brought in by his father. He has been coughing for 3 days and now seems congested with reported temperature of 37.6°C.
- The boy has Muscular Dystrophy (diagnosed at 4 years of age). He was started on oral antibiotics as soon as he became ill.
- PAT indicates RR rapid, irregular and shallow, skin is mottled and capillary refill >2 secs.
Case 12

- An 8 year old boy was standing behind his older brother who was practicing his golf swing. He was struck on the side of his head and has a 2 cm laceration, but no loss of consciousness.
- RR 21, HR 96, BP 112/76.
- He says the pain is mild and appears in no distress.
- He is not actively bleeding.
Case 13

- A 13 year old girl presents with severe chest pain (9/10).
- RR 20, HR 117, BP 160/120
Case 14

- A 3 year old boy, brought in by EMS, was found in a garage unresponsive.
- RR 40, HR 120
- $O_2$ Sat 95%, glucose 4.0 mmol/L
Case 15

- A 10 month old infant presents with a 1 week history of increasing cough. Today parents were concerned about slight colour change with coughing.
- The infant is alert, quiet and pink.
- RR 30, HR 130, Temp 37°C, O₂ Sat 98%.
Case 16

- A 6 year old girl arrives with a teacher who states the girl fell in the schoolyard and struck the side of a slide. There is dried blood on the girl’s face and she is crying.

- The girl is alert, respirations are normal and she is in discomfort.

- She has a swollen right forearm that is splinted and a 4 cm laceration above her left eyebrow.

- RR 18, HR 110, GCS 15.

- Complaining of moderate pain.
Case 17

- A 5 year old presents with fever and abdominal pain 2 days after returning from vacation.
- RR 30, HR 135, Temp 41°C.
Case 18

- A 6 year old girl presents with a history of vomiting and diarrhea for the past day.
- She vomits a small amount on arrival to the ED.
- She is alert and talkative.
- RR 24, HR 110, T 37.9°C.
Case 19

- A 12 year old presents with her first menstrual period. She has been bleeding for 10 days and complains of dizziness.
- RR 26, HR 120
Case 20

- A 14 year old girl presents with recurrent knee pain, worse when climbing stairs. Currently 4/10, improves with ibuprofen & worsens with activity. It has bothered her on and of for 2 years, worse when playing volleyball. There is no redness or swelling.
- The vital signs are normal.
A 7 year old girl presents with a 6 month history of a skin lesion on her finger. There is no history of infectious contact, travel or underlying disease.

She looks well.