

Appendix C: Canadian Triage & Acuity Scale (CTAS) Definitions

These lists of presenting complaints or case scenarios are not meant to be all-inclusive or absolute in their application. Triage personnel are always encouraged to use their experience and instincts to "up triage" priority, even if the patient does not seem to fit exactly with the facts or definitions on the triage scale... "If they look sick then they probably are". The providers instinct should not be used to "down triage"(lower the triage level assignment), when the facts suggest there may be a problem... If they say they have chest pain and sweat and arm ache but look well... take the more serious possibilities first and have someone find the proof that nothing is wrong.

Level I Resuscitation

Conditions that are threats to life or limb (or imminent risk of deterioration) requiring immediate aggressive interventions.

Time to physician IMMEDIATE - Usual presentations:

1. Code/arrest: patients with cardiac and /or pulmonary arrest (or appears to be imminent)
2. Major trauma: Severe injury of any single body system or multiple system injury (ISS>16) Head injury with GCS<10; severe burns (>25% TBS or airway problems), chest/abdominal injury with any or all of: altered mental state, hypotension, tachycardia, severe pain, respiratory signs or symptoms.
3. Shock states: Conditions where there is an imbalance between Oxygen supply (cardiogenic, pulmonary, blood loss, disorders of oxygen affinity) and demand (hyperdynamic states) or utilization (sepsis syndrome). Hypotension and or tachycardia and possibly bradycardia in advanced/pre arrest situations.
4. Unconscious: Intoxications/overdoses, CNS events, metabolic disturbances can all have an alteration of mental function from disorientation/confusion to completely unresponsive or actively seizing. Airway protection and supportive care with prompt assessment to determine the cause/treatment are of critical importance. Hypoglycemia is a rapidly reversible problem, which should be ascertained with bedside screening tests.
5. Severe Respiratory Distress: There are many causes for respiratory distress but benign reasons can only be diagnosed by exclusion. Serious intracranial events, pneumothorax, near death asthma (unable to speak, cyanosis, lethargic/confused, tachycardia/bradycardia, O2 sat <90%) COPD exacerbations, CHF, anaphylaxis and severe metabolic disturbances (renal failure, Diabetic Keto acidosis). These patients require rapid assessment of the ABC's and physician intervention. Medications and equipment for management of respiratory and ventilatory failure (Endotracheal intubation-RSI, BIPAP) bronchodilators, inotropes, vasodilators need to be made available.

Typical patients: Non responsive, Vital Signs Absent/Unstable

Level II Emergent

Conditions that are a potential threat to life limb or function, requiring rapid medical intervention or delegated acts.

Time to physician assessment/interview: not more than 15 min.

1. Altered mental state: Infectious, inflammatory, ischemic, traumatic, poisoning, drug effects, metabolic disorders, dehydration ... can all affect sensorium from simple cognitive deficits to agitation, lethargy, confusion, seizures, paralysis, coma. Even subtle changes can be associated with serious life threatening and treatable problems. All patients with altered mental state should have a rapid blood sugar screening test. Young children with irritability and poor feeding are examples of altered mental state that could represent serious bacterial infection or dehydration.
2. Head injury: This problem appears in several triage levels. The more severe or high-risk patients require a rapid MD assessment, to determine the requirements for airway protection/CT scanning or neurosurgical intervention. These patients usually have an altered mental state (GCS \leq 13). Severe headache, loss of consciousness, confusion, neck symptoms and nausea or vomiting can be expected. Details regarding the time of impact, mechanism of injury onset and severity of symptoms and changes over time are very important.
3. Severe trauma: These patients may have high-risk mechanisms and severe single system symptoms or multiple system involvement with less severe signs and symptoms in each (ISS \geq 9). Generally the physical assessment of these patients should reveal normal or nearly normal vital signs (Abnormal VS, level I). These patients may have moderate to severe pain and normal mental status (or meet the criteria outlined for level II head injuries).
4. Neonates: Children \leq 7 days are at risk for hyperbilirubinemia, undiagnosed congenital heart abnormalities and sepsis. The signs of serious problems may be very subtle. Parental anxiety is often very high and these patients should be brought into the ED treatment area and have prompt physician assessment or verbal review.
5. Eye pain: Pain scale 8-10/10. Chemical exposures (acid or alkali) cause severe pain and blurred vision is usually due to photophobia and runny eyes (blephorrhoea). These patients should receive topical analgesics and have eye rinsing according to local guidelines (15 minutes for acid and 30 minutes for alkali). Physician assessment with a slit lamp is suggested after rinsing. Time to physician assessment may be delayed if the treatment protocol can be implemented without a physician order. Other painful conditions such as glaucoma and iritis may have associated visual deficits and requires prompt physician assessment. Corneal foreign bodies arc weld, or solar keratitis, would benefit from topical analgesics and physician time to assessment could be delayed if the pain is controlled. If pain is not controlled the diagnosis should be reconsidered.
6. Chest pain: This is one of the most difficult presenting symptoms for triage nurses and Emergency physicians. There are so many ways in which cardiac ischemia presents that we are frequently faced with long and detailed assessments that don't always lead to a definite conclusion. Patients with non-traumatic, visceral pain are most likely to have significant coronary syndromes (AMI, Unstable angina). Careful documentation of the

activity at the onset, the duration of each episode, the character, the site, the radiation, associated symptoms aggravating and alleviating factors and risk profile, all influence the ability to predict the presence or absence of significant coronary disease. Visceral pain is continuous (more than a few seconds and almost always more than 2-5 minutes) and is described as pressure, ache, squeezing, heaviness, burning, or just a "discomfort". If there are associated symptoms (such as sweat, nausea, and shortness of breath) and/or radiation to neck, jaw, shoulder(s), back or arm(s) then the likelihood of a serious etiology increases dramatically. Sudden sharp pains: can be associated with chest wall problems, but can also be due to pulmonary embolus, aortic dissection, pneumothorax, pneumonia, or other serious problems associated with vascular or viscous rupture. These patients usually have sharp pains that are severe, sudden, and persistent or are associated with other symptoms (Short of breath, syncope/pre syncope) or significant risk factors are present. Sharp pains which are not severe or are easily reproduced by palpation or aggravated by cough, deep breathing, or movement, with normal vital signs can have a delay in physician assessment (Level III or IV). Previous MI, Angina or Pulmonary embolus: Patients with a prior history of these conditions should be level II no matter what the character of the pain.

7. Overdose: Intentional overdoses are particularly unreliable when trying to determine which agents have been ingested and the actual quantity. These patients require early physician assessment, or advice, with regard to the need for toxic screening, monitoring or methods of preventing absorption, enhancing elimination or administration of antidotes. Patients with any signs of toxicity (altered mental state, abnormal vital signs) should be seen very quickly (5 minutes).

8. Abdominal pain: Pain severity alone, cannot predict whether serious surgical or medical conditions are present. Visceral pains (constant, ache, pressure, burning, squeezing) with associated symptoms (nausea, vomiting, sweat, radiation, bump or reverberating pain) with vital sign abnormalities (hypertension, hypotension, tachycardia, fever) are much more likely to be serious problems which require prompt investigation, treatment, or pain relief. Cramps or intermittent or sharp brief pains without vital sign abnormality usually may be delayed. There is significant overlap between benign conditions and catastrophes such as ruptured AAA (age >50), ectopic pregnancy (females 12-50), perforated viscous, appendicitis, bowel obstruction, ascending cholangitis. This means that all severe abdominal pain (8-10/10) should cause providers to be particularly wary of "visceral pains" or very sudden pains, particularly with other associated symptoms.

9. GI Bleed: Upper GI causes are more likely to cause instability. Vomiting gross blood, coffee ground emesis and melena are typical of UGI sources. Maroon stool, dark blood or bright red blood can also be from UGI sources but are more likely to be lower GI. The source is not as important as how to deal with the patient with hemodynamic instability. One set of normal vital signs carries no guarantee of hemodynamic stability.

10. CVA: Patients with major neurological deficits may require airway protection or emergent CT scanning to determine criteria for thrombolysis, anticoagulation, neurosurgical intervention or prognostication. If the time of onset of symptoms is <4 hours then time to CT scanning is critical element in treatment strategies.

11. Asthma: Severe asthma is best defined with a combination of objectives measures (FEV1; PEFR, O2 saturation) and clinical factors, which relate to the severity of

symptoms, vital signs and history of previous severe episodes. The best measure of severity and guide to therapy is some form of spirometric testing. If the FEV1 and /or PEFr are <40% predicted or previous best, the patient is considered severe and requires prompt treatment and close observation until signs of improvement. In children who cannot do Spirometry or PEFr, particularly under age 6, clinical features and O₂ saturation are used to estimate severity.

12. Dyspnea: This is subjective and may correlate poorly with lung function or deficits in Oxygen uptake and delivery. Depending on the age, previous history and physical assessment one may not be able to distinguish between asthma COPD, CHF, PE, pneumothorax, pneumonia, croup, epiglottitis, anaphylaxis... or a combination of problems. Onset and duration of symptoms, vital signs and auscultation of the chest will frequently allow for early intervention for most of the serious causes of shortness of breath.

13. Anaphylaxis: Severe allergic reactions can deteriorate rapidly. Patients with a history of asthma are at particularly high risk of death. Suspicion of problems should be present if there are any respiratory symptoms or complaints of tightness in the throat. These patients may receive Epinephrine by protocol, and have slightly longer delays to physician assessment, particularly if there is a prior history of this problem, with an uncomplicated course. True anaphylaxis involves multiple body systems: CNS (altered mental state to seizure/coma) CVS (hypotension/tachycardia, vascular collapse/shock) Respiratory (wheeze, cyanosis, cough) Skin (urticaria, itch with any type of non purpuric rash) GI (vomiting, abdominal pain, diarrhea) Renal... The history of time of exposure and type of agent relative to the time of onset of symptoms are important to determine the cause and for future follow or discharge advice.

14. Vaginal Bleeding/acute pelvic lower abdominal pain: Patients with vaginal bleeding and or acute lower abdominal, should be assessed for the possibility of ectopic or other serious problems associated with pregnancy. Patients with abnormal vital signs (hypotension) should have IV access established and prompt physician assessment. Even if the pain is only moderate (4-7/10) ectopic or abruption/fetal distress are still possible. Patients \geq 20 weeks should be assessed promptly and consideration of immediate transfer to the case room with or without physician assessment, depending on local protocols or guidelines.

15. Serious Infections: Patients with bacterial infections or sepsis syndrome usually appear unwell and will have an abnormality in one or more physical signs such as mental state, vital signs, O₂ saturation. A history of fever or chills with rigors should be elicited. (rigor is a shaking episode which the patient can't control: teeth chattering, bed rocking...). Purpura type skin rashes (non-blanching spots, eg petechiae) may be associated with meningitis.

16. Fever (young children): Temperatures \geq 38.0 in children under 3 months.

17. Fever: With signs of lethargy (any age) should result in a prompt assessment by the physician to consider serious bacterial illnesses such as meningitis.

18. Children: with lethargy, poor feeding, vomiting with or without a fever should have very prompt physician assessment or contact for advice on interventions.

19. Vomiting and diarrhea: with suspicion or signs of dehydration. The signs of dehydration are not always reliable, particularly in younger patients.

20. Acute psychosis/extreme agitation: These patients may be suffering from metabolic disturbances, poisoning or other organic problems. If the acute psychosis/agitation is part of a known ongoing psychiatric illness, the patient and department will benefit from early intervention with antipsychotics, sedatives (chemical restraint) or if necessary physical restraints. History from other health providers (community MD, RN, EMT) witnesses, caregivers, family, friends, Vital signs and physical assessment will usually allow for identification of those at risk from a medical perspective (overdose, CNS events, hypoglycemia...).

21. Diabetes: Medic alert bracelets, history from others, physical assessment, vital signs bedside glucose testing will all be useful in identification of diabetics with hyper or hypoglycemia. Diaphoresis and or altered mental state are typical of hypoglycemia. Altered mental state, blurred vision, fever, vomiting, abnormal pulse and respirations (rapid and deep) are more typical of elevated blood sugar with or without diabetic ketoacidosis.

22. CVA/Abdominal/groin pain: Renal colic (lithiasis-"stones") typically has very severe pain (8-10/10) with CVA, Abdominal, groin, testicular pain. Nausea and sweat are common but it is usually the severity of pain, (with or without a prior history) which alerts care providers to the diagnosis. AAA's have sometimes been missed or have a delay in diagnosis because of some overlapping features in the history and physical. Hematuria is frequently present but is not necessary for the diagnosis of renal colic. Prompt physician assessment or protocols that allow for the administration of IV or rectal analgesics are suggested. Vital sign abnormalities (Hypertension or hypotension) or concern that the diagnosis is not renal in origin should prompt immediate physician notification or assessment.

23. Headache: This presenting complaint appears in multiple triage levels. There are significant concerns about delays in diagnosing "CNS catastrophes" (Subarachnoid, epidural, subdural, meningitis/encephalitis) which may have several overlapping features with migraine. It is also thought to be important to institute abortive therapy, with non-opiate agents, in a timely fashion to relieve unnecessary pain and suffering and shorten ED length of stay, for patients with migraine. The key to diagnosis/risk stratification is primarily based on an accurate history of onset, course, duration, associated symptoms and prior history of similar episodes. Activity at the time of onset, how sudden the pain was, neck symptoms, nausea/vomiting, mental status are key questions. It is important to establish what a patient means by a "sudden pain". All pains are actually sudden...how long it takes to attain maximum intensity is what is critical in medical diagnostics. Pains that are at their worst at the moment they start ("like someone hit me with a two by four", or like a "thunderclap") or within a few seconds are almost always serious. Pains that come on rapidly (5-30 minutes) are typical of migraine. More gradual pains are not always benign but in headaches they rarely are associated with the "catastrophes" on the differential list (intra cranial blood).

24. Severe pain (Pain Scales): When a patient claims to have a pain of 8-10/10 and does not appear to be in distress, or appear to have anything you expect to have intense pain, it is helpful to ask what their most painful experience had been before. The first pain anyone has is by definition a 10/10! If they have had a child, a broken bone, renal colic, migraine or other conditions expected to cause severe pain and their current pain is being compared with one of these entities, this may help you to decide which triage level is

appropriate. You may also want to obtain a verbal order from the physician for analgesics. Children or elderly thought to have severe pain (but are unable to score or rate their pain) should be treated as though they have 8-10/10.

25. Abuse/neglect/assault: These patients may not have life threatening problems but have very special needs that relate to their mental well-being and specific requirements for the collection of samples for evidence, or the activation of local protocols for the use of assault teams and community services. Victims of acute sexual assault (within 4 hours) should all be level II and others could be level III or less depending on the nature of the injuries or medical condition. These patients require a safe and caring environment with emotional support.

26. Drug withdrawal- severe- (Delirium tremens or other): These patients may be sometimes mistaken for acute psychiatric problems. Occasionally patients who are known substance abusers are assumed to be in the ED for non-medical problems and the danger they are in can be underestimated. Seizures, coma, Hallucinations, confusion, agitation (shakes, tremors), signs of catecholamine excess (tachycardia, hypertension, hyperpyrexia), chest/abdominal pain, vomiting, diarrhea... are all part of a spectrum of signs and symptoms associated with drug/alcohol withdrawal.

27. Chemotherapy: Patients on chemotherapy or immune-compromised patients (HIV, known immune deficiency, malignancy) with or without a fever are at higher risk of serious problems. These patients can deteriorate quickly, may require isolation and early assessment of absolute white cell counts.

Level III Urgent

Conditions that could potentially progress to a serious problem requiring emergency intervention or those that may be associated with significant discomfort or affecting ability to function at work or activities of daily living.

Time to physician (approximately 30 min).

1. Head injury: these patients may have had a high-risk mechanism. They should be alert (GCS 15) moderate pain (<8/10) and nausea or vomiting. Should be changed to level 2 if deteriorating or just appears unwell.
2. Moderate trauma: Patients with fractures or dislocations or sprains with severe pain (8-10/10). Nursing interventions such as splinting or analgesics make it reasonable to have some delay in time to physician assessment/intervention. Dislocations should be reduced promptly, so physician assessment should occur in \leq 30 minutes. Patients are "stable"(normal or near normal vital signs).
3. Asthma, mild/moderate: Patients with mild moderate shortness of breath with exertion, frequent cough or night awakening (unable to lie down flat without symptoms) and FEV1 or PEFr 40-60% predicted or previous best and O2 saturation \geq 92-94%. Mild asthma is FEV1 or PEFr $>$ 60% and O2 saturation $>$ 95%. Mild asthmatics can have severe attacks and severe asthmatics can have mild attacks. Some documentation of meds and previous attack patterns (Intubated, ICU, frequent admits) can help to identify high-risk individuals. It is unwise to assign a low triage level to an asthmatic that has come in because of increased respiratory symptoms. These patients should be placed in areas of the department where they can be observed, there is a means of reevaluation or the patient or companion knows to report any worsening to the Emergency staff. Spirometric measurements (FEV1, PEFr) should be performed on patients (over age 5) with asthma who have come to the ED because of a change in respiratory status.
4. Dyspnea, Moderate: Patients with pneumonia, COPD, URI's, croup... may complain of, or appear to be short of breath. As a symptom it is not always clear how to quantitate it and it may come down to an assessment of vital signs and other accompanying symptoms to decide its likelihood of needing urgent investigation or treatment. Objective measures such as FEV1/PEFr or O2 saturation are helpful, particularly if wheezing is present or they are known to have COPD.
5. Chest pain: Sharp localized pains, worse with deep breathing, cough, movement or palpation not associated with shortness breath or other signs that might suggest significant heart or lung disease. These are usually due to chest wall problems or irritation on one of the "linings" inside ("pleurisy" or even pericarditis). If a patient is elderly or has had an AMI or angina, and have this type of pain they should still probably be triaged as level II. No visceral features should be present (see level II chest pain).
6. GI Bleed: Upper or lower GI bleed, not actively bleeding, with normal vital signs. There is always potential for deterioration, so a repeat set of vital signs should be done within 30 minutes or if there is any change in status/symptoms.
7. Vaginal Bleeding and pregnancy: Mild or no pain (\leq 4/10) and bleeding is not severe, first trimester (LMP \geq 4 weeks and /or previously positive b HCG) and normal vital signs. Should be reassessed within 30 minutes.

8. Seizure: Known seizure disorder or new onset but brief (<5 minutes). Alert, breathing normally, protecting airway (normal gag), normal vital signs.
9. Acute psychosis and/or suicidal: Psychiatric problems, not really agitated but some uncertainty as to whether they are threat to themselves or others. Normal vital signs. May be very emotional but not violent and reasonably cooperative. Some "bipolars"(manic-depressive). Require safe caring environment and some assessment of risk for overdose.
10. Acute pain severe (8-10/10): patients with minor problems but self-reported intense pain (8-10/10) should have either nursing intervention (ice, splints..) or a protocol to institute analgesics or early access to verbal physician assessment. Patients with discogenic back pain usually have a very sudden pain while lifting or bending. Radiation of pain to the legs is common. If there is muscle weakness, loss of sensation or unable to urinate/incontinent then more serious neurological problems may be present and urgent physician assessment is necessary. Mechanical back strains/ pains are usually slower in onset or even delayed (hours to 1-2 days). High pain scales (8-10/10) are common and separating acute from chronic back pain often makes these patients challenging with regard to triage assignment. Frequently patients are frustrated and providers often don't know whether potent analgesics are of help. Being judgmental about someone's pain can run the risk of missing other important problems and high levels of patient dissatisfaction with their Emergency visit. It is very difficult to assess back pain patients without a stretcher and exposure from the waist down, the patient should be taken to an area where this can be done.
11. Acute pain moderate (4-7/10): Patients with migraine or renal colic can present with moderate pain but deteriorate rapidly. These patients would probably benefit from earlier intervention. Some moderate non-traumatic back discomforts can have potentially serious causes and should have normal vital signs and nursing reassessment if there are delays in physician assessment.
12. Vomiting and or diarrhea (Age < 2 years): Dehydration and serious infections can sometimes be subtle in very young children and vital signs may be normal.
13. Dialysis (or transplant patients): Electrolyte and fluid balance problems are common in these patients. This increases the risk for arrhythmias and rapid deterioration.

Level IV Less Urgent (Semi urgent)

Conditions that related to patient age, distress, or potential for deterioration or complications would benefit from intervention or reassurance within 1-2 hours).

Time to physician, approximately 1 hour

1. Head Injury: Minor head injury, alert (GCS 15), no vomiting, neck symptoms and normal vital signs. May require brief period of observation, depending on time of injury in relation to ED visit. If time interval from accident >4-6 hours and has remained free of symptoms, a neuro check and head routine sheet may be all that is necessary. The age of the patient and characteristics of the care provider/support at home may also influence the disposition decision or observation period.
2. Minor trauma: Minor fractures, sprains, contusions, abrasions, lacerations, requiring investigation or intervention. Normal vital signs, moderate pain (4-7/10).
3. Abdominal pain: Acute pain of moderate intensity (4-7/10) or in a child in "no acute distress". The severity of pain for appendicitis or cholecystitis or other potentially serious problems is not a reliable means of excluding these problems. Vital signs should be normal and the patient should not appear to be in acute distress. Constipation can cause very severe pain or on occasion be confused with other more serious problems. Start by assuming the worst possible, and ensure that there is sufficient clinical or investigative data that allows exclusion of potentially severe but treatable problems.
4. Headache: Not sudden, not severe, not migraine, no associated high-risk features (see level II and III headache). Infectious problems like sinusitis, URI, or Flu like illnesses may cause these. Pain should be no more than moderate (4-7/10) and normal vital signs.
5. Ear ache: Otitis media and externa can cause moderate (4-7/10) to severe (8-10/10) pain and these patients should receive analgesics either as part of nursing protocol/intervention or with a verbal order from the physician. If the patient either has severe pain or is in acute distress (child), the triage level should be III or have orders for analgesics. The provider should use their judgment as to how soon the physician assessment should occur. Determining the cause of ear pain and implementing appropriate treatment or follow up is important.
6. Chest pain: These patients should have no acute distress, pain (4-7/10), no shortness of breath, no visceral features, no previous heart problems, normal vital signs. The pain is usually pleuritic (sharp, worse with deep breath, cough, movement, palpation). These patients may have had a chest wall injury or some strain of the muscles from cough or physical activity.
7. Suicidal/Depressed: Patients complaining of suicidal thoughts or have made gestures but do not seem agitated. Normal vital signs. Because suicidal risk and the possibility of overdose is frequently difficult to accurately define, these patients should have a responsible person staying with them and periodic reassessment should occur. Patients with depression should also be evaluated for their potential for suicide. All providers should show empathy and try to have the patients placed in a quiet and secure area.
8. Corneal Foreign body: If pain is mild or moderate (4-7/10) and no change in visual acuity.

9. Back pain, chronic: These patients may be very challenging and should always be assessed as though their problem has never been seen before. It is usually easy to confirm that the pattern is identical to before and that neurological abnormalities are not present. Occasionally patients may have substance abuse problems and the sole purpose of the visit is to seek a narcotic prescription. It is unwise to label people or be judgmental unless there is clear evidence that you are dealing with substance abuse as opposed to drug addiction and chronic pain syndromes. The triage area is not suited to making this determination and physician assessment is necessary.

10. URI symptoms: Patients with upper airway congestion, cough, aches, fever, and sore throat are frequent visitors to ED's. Unfortunately patients with strep throat, mono, peritonsillar abscess, epiglottitis, pneumonia, or other serious illnesses cannot always be identified in routine or quick look assessments. Flu like illnesses with generalized symptoms can be serious for patients who are elderly, have significant health problems, or very young. Because some serious bacterial infections can also have some similarities with what appears to be the "flu", these patients may require level III care in some instances. If there are significant respiratory signs or symptoms, perform an O₂ saturation and if <95% upgrade triage level.

11. Vomiting and or diarrhea no signs of dehydration (Age >2): The risk of dehydration increases with vomiting and diarrhea together. Most times, simple viral gastroenteritis does not cause any serious problems in healthy adults and most children. Signs of dehydration vary by age. Young children may have behaviour / mental status changes that range from simple fussiness, to being very lethargic or unconscious. Other clues will be found in the vital signs, dry mucous membranes, decreased tears, decreased urine output and skin turgor. The questions in triage should attempt to clearly define the onset and course of the illness with quantification of the episodes of diarrhea and vomiting. Knowing how many times someone had vomited, whether it occurred only when eating or drinking and when the last episode was (exact times are best (not earlier today... 1000 am). The same is true for diarrhea. If there are less than 5 loose bowel movements per day then dehydration or electrolyte imbalances are unlikely. In older children and adults with > 10 bowel movements per day (with or without blood) more serious causes including inflammatory bowel diseases should be considered. Patients with >= 10 episodes of vomiting in the previous 24 hours and /or > 5 b.m.'s per day for 2 or more days should cause consideration of up triage to level II or III depending on the assessment of hydration. It is also important to appreciate that vomiting can be a sign of other problems such as CNS abnormalities, cardiac disease, drug effect, renal failure, hepatic disturbances, diabetes, disorders of pregnancy... These may be identified if they are at least considered.

12. Acute pain-moderate (scale 4-7/10): Moderate pain with minor injuries or MSK problems.

Level V Non Urgent

Conditions that may be acute but non-urgent as well as conditions that 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.

Time to physician, approximately 2 hours.

1. Minor trauma: contusions, abrasions, minor lacerations (not requiring closure by any means), overuse syndromes (tendonitis), and sprains. Nursing interventions, splinting, cleansing, and immunization status, minor analgesics are all expectations of patients in this category.
2. Sore throat, URI: Patients with minor complaints, not severe and no respiratory symptoms/compromise. Typical viral illnesses, with normal vital signs or low-grade fever (<39° C).
3. Vaginal bleeding: Can be normal menses or painless bleeding in postmenopausal patients. If pregnancy is excluded and pain is not severe (<4/10), vital signs are normal...these patients can safely have a delay in assessment.
4. Abdominal pain: Mild pain (<4) which is chronic or recurring, with normal vital signs. Some individuals may complain of more severe pain, particularly younger people and be difficult to justify higher triage assignment. It is important to consider the context in which these patients present and take efforts not to be judgmental. Their symptoms may be very challenging and frustrating for the care provider, or patient, neither of whom really want to be in the ED. Extended waiting periods should lead to some reassessment and/or up triaging.
5. Vomiting alone, Diarrhea alone: no signs dehydration and age>2: These patients should have normal mental status and vital signs.
6. Psychiatric: These patients may seem to have minor or insignificant problems from the providers point of view but be frustrated by a lack of availability of other health care options that are community specific. They may also be simply unaware of what other options are available. Having an open mind and being sensitive to socioeconomic and cultural issues will allow the provider the opportunity to evaluate the level care needed and the risk of harm to self or others. Chronic or recurring depression, trouble coping, impulse control...normal mental state, without somatic/vegetative findings (appetite, weight, sleep pattern disruption, unexplained crying episodes) and normal vital signs. Some chronic but more serious psychiatric disturbances or behavior disorders for which there is no evidence of deterioration or change...This cannot usually be fully evaluated in triage.

Patients who are difficult to group:

If a patient seems difficult to assign a triage level because they don't seem to fit any of the categories, the provider needs to either discuss the case with a colleague or make a judgment based on their experience or instinct. The fundamental principle, when deciding triage level, is that patients should be treated as though they were close friends or family members. Patients who have a similar "administrative presentation" such as "recheck" or for "tests" or "booked procedures" are not all the same in terms of their need for care or the amount of resources required. Patients with the same clinical symptoms or complaint such as chest pain, head injury, asthma... can be assigned to one of several triage levels. This should be based on the available investigation and treatment guidelines care maps, critical pathways...

Revisits/scheduled: Patients returning for dressing changes, casts checks, rechecks of medical conditions (chest pain, R/O DVT, Abdominal pain, head ache, asthma...) are very diverse in terms of their requirements for care, resources required and needs with respect to time to intervention. Some ED's do scheduled procedures and based on the community and system capabilities this may be the best possible option. Even though they may be elective and sometimes not very urgent, it is not usual to operate a system that would allow long delays to intervention. Designated fast track or procedure areas for these patients may only be local management issues that are not relevant to triage as a system of prioritization. If triage assignment is used to group patients based on resource need and timeliness to care, then most patients would be level V with a very low expectation of admission. All patients should be triaged, because there are very real differences in those who have scheduled tests (V/Q scan, U/S Abdomen/pelvis, CT head for headache). The patient's condition may have changed from when the test was arranged or the recheck may be a patient choice because symptoms have worsened or changed. To assume that all revisits, rechecks, scheduled tests or procedures are the same triage priority or resource consumption is dangerous and does nothing to monitor the appropriateness of system utilization.

*Pearl of wisdom: If patients look sick and you are not sure, triage them as Level I or II.

Appendix D:

Emergency Severity Index (ESI) Implementation Handbook, 2012 Edition

The Emergency Severity Index (ESI) is a simple to use, five-level triage algorithm that categorizes emergency department patients by evaluating both patient acuity and resource needs. Initially, the triage nurse assesses only the acuity level. If a patient does not meet high acuity level criteria (ESI level 1 or 2), the triage nurse then evaluates expected resource needs to help determine a triage level (ESI level 3, 4, or 5). The ESI is intended for use by nurses with triage experience or those who have attended a separate, comprehensive triage educational program.

Inclusion of resource needs in the triage rating is a unique feature of the ESI in comparison with other triage systems. Acuity is determined by the stability of vital functions and the potential threat to life, limb, or organ. The triage nurse estimates resource needs based on previous experience with patients presenting with similar injuries or complaints. Resource needs are defined as the number of resources a patient is expected to consume in order for a disposition decision (discharge, admission, or transfer) to be reached. Once oriented to the algorithm, the triage nurse will be able to rapidly and accurately triage patients into one of five explicitly defined and mutually exclusive levels.

Each step of the algorithm guides the user toward the appropriate questions to ask or the type of information to gather. Based on the data or answers obtained, a decision is made and the user is directed to the next step and ultimately to the determination of a triage level. The four decision points depicted in the ESI algorithm are critical to accurate and reliable application of ESI. The figure shows the four decision points reduced to four key questions:

- A. Does this patient require immediate life-saving intervention?
- B. Is this a patient who shouldn't wait?
- C. How many resources will this patient need?
- D. What are the patient's vital signs?

Appendix E: SIX DIMENSION SCALE OF PARAMEDIC PERFORMANCE

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Instructions: The following is a list of activities in which nurses engage with varying degrees of frequency and skill.

1. **IN COLUMN A:** please enter the number that best describes how often the nurse performs the activities in the performance of his/her current job.
2. **IN COLUMN B:** for those activities that the nurse does perform please enter the number that best describes how well he/she performs them.

PLEASE USE THE KEY AT THE TOP OF EACH COLUMN

COLUMN A

How often does this nurse perform these activities in his/her current job?

- 1- Not expected in this job
- 2- Never or seldom
- 3- Occasionally
- 4- Frequently

COLUMN B

How well does this nurse perform these activities in his/her current job?

- 1- Not very well
- 2- Satisfactorily
- 3- Well
- 4- Very Well

	Column A	Column B
1. Teach a patient's family members about the patient's needs.		
2. Coordinate the plan of paramedic care with the medical plan of care.		
3. Give praise and recognition for achievement to those under his/her direction		
4. Teach preventive health measure to patients and their families.		
5. Identify and use community resources in developing a plan of care for a patient and his/her family.		

	Column A	Column B
6. Identify and include in paramedic care plans anticipated changes in patient's conditions.		
7. Evaluate results of paramedic care.		
8. Promote the inclusion of patient's decision and desires concerning his/her care.		
9. Develop a plan of paramedic care for a patient.		
10. Initiate planning and evaluation of paramedic care with others.		
11. Perform technical procedures: e.g. oral suctioning, tracheostomy care, IV therapy, catheter care, dressing changes.		
12. Adapt teaching methods and materials to the understanding of the particular audience: e.g., age of patient, educational background and sensory deprivation.		
13. Identify and include immediate patient needs in the plan of paramedic care.		
14. Develop innovative methods and materials for teaching patients.		
15. Communicate a feeling of acceptance of each patient and a concern for the patient's welfare.		
16. Seek assistance when necessary.		
17. Help a patient communicate with others.		
18. Use mechanical devices: e.g., suction machine, Gomco, cardiac monitor, respirator		
19. Give emotional support to family of dying patient.		
20. Verbally communicate facts, ideas, and feelings to other health care team members.		
21. Promote the patients' rights to privacy.		
22. Contribute to an atmosphere of mutual trust, acceptance, and respect among other health team members.		
23. Delegate responsibility for care based on assessment of priorities of paramedic care needs <u>and</u> the abilities and limitations of available health care personnel.		
24. Explain paramedic procedures to a patient prior to performing them.		

	Column A	Column B
25. Guide other health team members in planning for paramedic care.		
26. Accept responsibility for the level of care under his/her direction.		
27. Perform appropriate measures in emergency situations.		
28. Promote the use of interdisciplinary resource persons.		
29. Use teaching aids and resource materials in teaching patients and their families.		
30. Perform paramedic care required by critically ill patients.		
31. Encourage the family to participant in the care of the patient.		
32. Identify and use resources within the health care agency in developing a plan of care for a patient and his/her family.		
33. Use paramedic procedures as opportunities for interaction with patients.		
34. Contribute to productive working relationships with other health team members.		
35. Help a patient meet his/her emotional needs.		
36. Contribute to the plan of paramedic care for a patient.		
37. Recognize and meet the emotional needs of a dying patient.		
38. Communicate facts, ideas, and professional opinions in writing to patients and their families.		
39. Plan for the integration of patient needs with family needs.		
40. Function calmly and competently in emergency situations.		
41. Remain open to the suggestions of those under his/her direction and use them when appropriate.		
42. Use opportunities for patient teaching when they arise.		

The following **PROFESSIONAL DEVELOPMENT** behaviors should be evaluated in terms of quality only--i.e. **COLUMN B**.

	Column A	Column B
43. Use learning opportunities for ongoing personal and professional growth.		
44. Display self-direction.		
45. Accept responsibility for own actions.		
46. Assume new responsibilities within the limits of capabilities.		
47. Maintain high standards of performance.		
48. Demonstrate self-confidence.		
49. Display a generally positive attitude.		
50. Demonstrate knowledge of the legal boundaries of paramedic care.		
51. Demonstrate knowledge in the ethics of paramedic care.		
52. Accept and use constructive criticism.		



Further information regarding the development, use and scoring of the Six Dimension Scale of Nursing Performance can be found in: Schwirian, P.M. (1978). Evaluating the performance of nurses: A multi-dimensional approach. Nursing Research, 27, 347-351.

APPENDIX F: PARAMEDIC CTAS IMPLEMENTATION SURVEY

**Instructions: For part I, please respond to the questions using whole number answers only.*

Part I: Demographic Factors

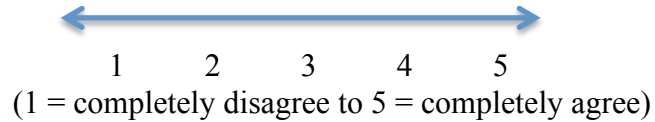
1. What is your age (in years)? _____
2. What is your FDID number? _____
3. How many years of full-time experience do you have as a paramedic? _____
4. Have you ever been a volunteer EMT or paramedic? 1 = Yes or 2 = No
5. If yes, for how many years did you volunteer? _____
6. Are you currently a volunteer EMT or paramedic? 1 = Yes or 2 = No
4. How many total years of experience do you have in Fire/EMS service? _____
5. How many total years of education do you have (HS=12, Bachelor's degree = 16, etc.)?

6. Do you consider yourself: 1=male, 2=female or 3=other gender? _____
7. Do you consider yourself: 1=of Hispanic origin or 2=not of Hispanic origin _____

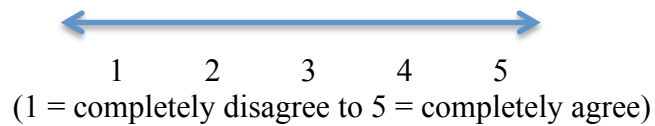
Part II: Instrument Factors

**Please answer the following questions using the 0-10 scale attached to each question.*

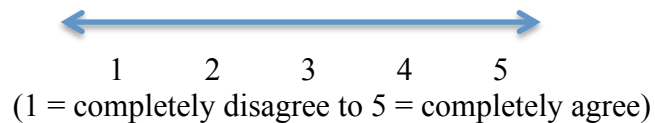
1. The CTAS instrument appropriately evaluated factors specific to my level of training:



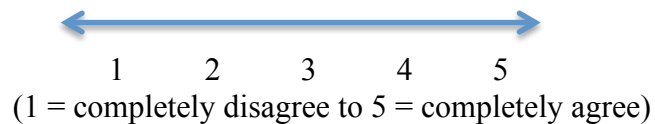
2. The CTAS instrument was easy to use:



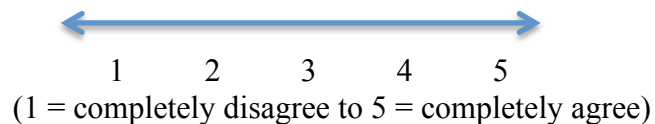
3. The CTAS instrument use and complexity of words was easy to understand:



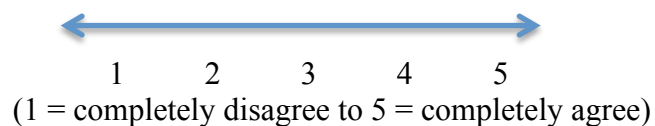
4. The time it took to use the CTAS instrument was too short:



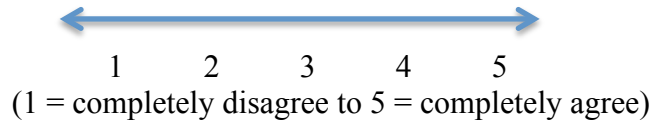
5. The time it took to use the CTAS instrument was too long:



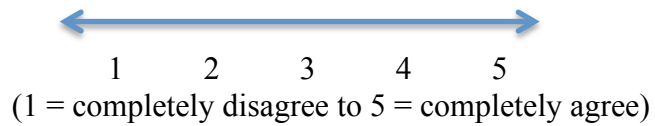
6. The sections of the CTAS instrument were labeled appropriately:



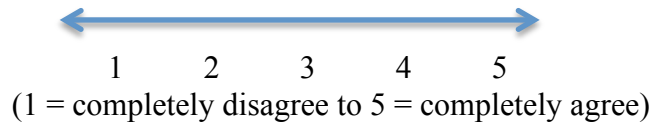
7. Color-coding of the sections of the CTAS instrument was helpful:



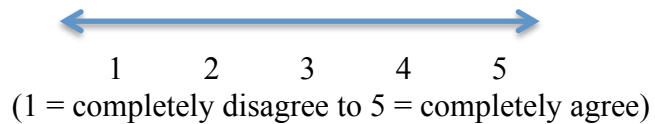
8. The flow of the CTAS instrument helped me determine the overall score:



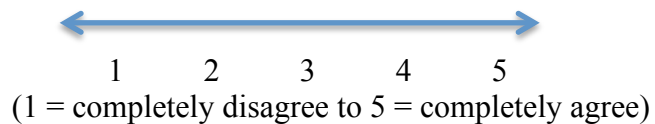
9. The flow of the CTAS instrument correctly predicted the acuity of my MEDICAL patient: (If your patient was a trauma enter 6 here and go to question 10)



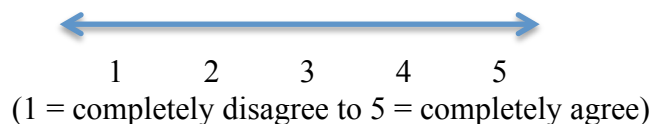
10. The flow of the CTAS instrument correctly predicted the acuity of my TRAUMA patient: (If your patient was a medical patient enter 6 here and go to question 9)



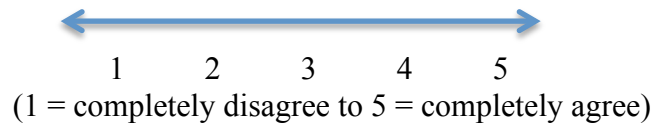
11. The time it took to use the CTAS instrument did not interfere with patient care:



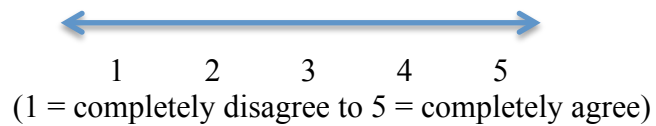
12. The CTAS instrument helps improve the ED's ability to adequately prepare for my patients arrival:



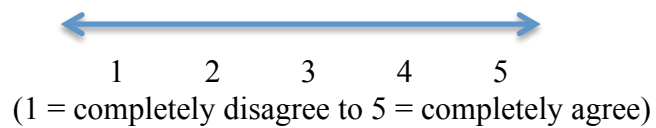
13. The CTAS instrument improves communication of my patient's level of illness or injury to the ED staff:



14. The CTAS instrument improves the handover process:



15. I would like to see the CTAS instrument implemented as standard of care for all transports:



APPENDIX G: PARAMEDIC SURVEY COVER LETTER

You have been invited to participate in this survey, IRB-HSR # 16902, because the Columbus, Ohio Division of Fire, currently employs you as a paramedic. Professor Audrey Snyder and D. Todd Smith, Doctoral Candidate at the University of Virginia, in Charlottesville, Virginia and The Ohio State University and Ohio Health in Columbus, Ohio, are conducting this survey.

The purpose of this survey is to learn more about the use of the Canadian Triage and Acuity Scale (CTAS) as a triage tool for professionals who provide care and transportation. Your participation in this survey is voluntary. Your identity will initially be linked to your answers, and to information regarding patients who have been in your care; however, your provider identification will be removed from the study data once it has been received by the data-coordinating center. Summarized findings from this survey will be shared with institutions and agencies that use the CTAS tool. In addition, the results may be published in professional journals. ***These reports or publications will contain no identifiable data about you.***

There are two parts to this survey. If you agree to participate, you will first be asked questions regarding your experience using the CTAS instrument as well as your perceived applicability of the instrument in regard to your current clinical practice. Additionally you will be asked basic demographic information including your age and years of experience. We will then ask you to fill out The Six-Dimension Scale of Paramedic Performance. This survey includes a list of activities, which may be part of your job. *You will be asked to state how often you perform each activity, and how well you feel you perform it.*

While **we very much hope you will complete the entire survey,** you may skip any questions you don't want to answer, or withdraw from participation at any time. There is no individual benefit for you in completing this survey, however, the results of the survey will help researchers learn more about the usefulness of the CTAS to paramedics. ***Part one of the survey will take about ten (10) minutes to complete while part two will take approximately 10 - 20 minutes. Your employers have given permission to complete the survey during work time.***

If you have any questions regarding this survey, please email them to Todd Smith, at dts8vv@virginia.edu or Professor Audrey Snyder at aew3e@virginia.edu, using the phrase CTAS SURVEY in the subject line. Your inquiries, like the survey itself, will be confidential.

You may also report a concern or ask questions about your rights as a research subject by contacting the Institutional Review board listed below.

University of Virginia Institutional Review Board for Health Sciences Research
P.O. Box 800483
Charlottesville, VA 22908
Telephone: 434-924-9634
Fax: 434-924-2932

When you call or write about a concern, please give as much information as you can. Include the name of the study leader, the IRB-HSR number, and details about the problem. This will help officials look into your concern. When reporting a concern, you do not have to give your name.

Thank you for your participation. PLEASE return the completed survey in the addressed and stamped envelope provided with the survey as soon as possible.

D. Todd Smith PhD(c), MSN, RN, FNP-C, FF/EMT-P
Doctoral Candidate