# DERIVATION OF THE PRIMARY CARE ASSESSMENT TRIAGE TOOL (PCATT) AND VALIDATION AGAINST THE SEPTEMBER 2013 OTTAWA TRAIN – BUS COLLISION

Dr. Svetlana Cakarevic , MD, CCFP (EM), EBCEM, EMDM Queensway-Carleton Hospital, Jeffrey Michael Franc, MD, MSc, FCFP(EM), D Sport Med, EMDM

## Background

In the case of a major disaster, there is an increased need to provide care to disaster victims. A key challenge is the lack of resources, or diverting of resources, to manage the most serious cases. However, there is still a need to provide care for other patients with minor injuries, who could be potentially diverted to ambulatory care centres. This study examined how to improve triage process at the scene and thus utilize primary care offices in the management of the casualties.

**Primary Care Assessment Triage Tool (PCATT)**

- Age 18-65
- Vital signs stable:
  - Blood Pressure systolic > 100
  - Respiratory Rate < 30
  - Heart Rate < 100
  - Oxygen Saturation > 95%
  - Capillary Refill < 2 seconds
- Glasgow Coma Scale – 15
- Ambulatory patients - No impaired function, Walking Wounded
- No head or Neck trauma
- No suspected open fractures
- Wounds – that do not include head, joints or high risk wounds (eyes, joints, penetrating wounds etc.)
- Abrasions, contusions, minor lacerations
- Burns - thermal or decontaminated chemical wounds 2nd and 3rd degree affecting < 10 % body surface and not affecting head.

## Goal

To establish criteria under which casualties of the Mass Casualty Incident (MCI) could be discharged directly from the scene to the care of the primary care physicians. The primary outcome measure of the study was to establish sensitivity of the suitability criteria by having physicians and paramedics apply the tool to a set of known disaster cases. The secondary outcome measure was to analyse if there is a significant difference when this tool is used by paramedics and physicians.

## Limitation

Although a major strength of the study design was that the validation cases were based on true patient outcomes, the number of validation cases (11) was small. Clearly, further study and application of the PCATT tool to other patient populations is advisable.

## Methodology

In the **Derivation Phase**, the Primary Care Assessment Triage Tool (PCATT) was developed and reviewed by a focus group of family physicians.

In the **Validation Phase**, cases were reviewed from the charts of known patients, who were the victims of a mass casualty incident.

**Eleven casualties** that presented to the **Queensway Carleton Emergency Department** after the Bus versus Train accident that occurred on September 18, 2013 in Ottawa, Ontario, Canada formed the validation set. Cases were considered to have been suitable for primary care if their true outcome did not require admission to hospital or any interventions in the emergency department.

Test cases were distributed to paramedics and physicians via an online survey. For each case, participants were asked to apply the PCATT criteria to decide if the patient was suitable for treatment in a primary care setting. Patients' actual outcome was not known to the participants.

## Results

Overall sensitivity of the PCATT tool was 92.1% with 95% confidence interval 90% to 94%. Overall specificity of the PCATT tool was 56.7% with 95% confidence interval of 54% to 59%.

When the PCATT tool was used by physicians, sensitivity was 94.1% and when used by paramedics, sensitivity was 87.9%. The 95% confidence interval for effect size was 0.67% to 11% (p=0.029)

Specificity was 58.5% for physicians and 53.1% for the paramedics. This was also statistically significant (p=0.038) with a 95% confidence interval for effect size of 0.38% to 12%.

## Discussion

Commonly used disaster triage tools have been found to have variable sensitivity and specificity. One study (Kahn et al, 2009), examined the sensitivity and specificity of the START triage tool by studying data from a train crash disaster in 2003. The study has found that sensitivity of the START triage tool was 100% (CI 15.8%-100%) when triaged as red, 39.1% (CI 19.7%-61.5%) when triaged as yellow and 45.8% (CI 36.7%-55.2%) when casualties were triaged as green. This study documented a divergence in sensitivity that was dependent on the START tool was only moderately effective when used by paramedics.

## Conclusion & Perspectives

In the case of a Mass Casualty Incident, the PCATT tool has sensitivity comparable or superior to other commonly used tools in the Emergency Department. Keeping in mind that in the case of a disaster, priority shifts from 'all for one' to 'most for many', this tool could be used to divert casualties' minor injuries and psychosocial consequences to the care of the primary care physicians and thus relieve the burden on already stretched resources in the emergency departments.