

Title: Development of the Canadian Prehospital Syncope Risk Score to predict short-term serious adverse events (SAE) after prehospital assessment of syncope.

Background: Syncope is a common reason for patients to call 911, with 70% of patients seen in the emergency department (ED) being transported by paramedics. 90% of these patients will have a benign cause for their syncope and will be discharged from the hospital. There is no validated tool for paramedics to safely assess and identify patients who are low risk for short-term unfavorable outcomes and divert them away from the ED. This study aims to develop the Canadian Prehospital Syncope Risk Score for use by paramedics in the prehospital setting and to accurately risk-stratify patients for any 30-day SAE and identify low-risk patients for non-transport to ED.

Methods: We will conduct a multi-center prospective study to enroll 2399 consecutive patients calling one of five Canadian paramedic services for syncope. Adult patients with confirmed syncope will be included. Patients will be excluded if age <18 years old, prolonged period of unconsciousness (>5 minutes), change in mental status from baseline, witnessed seizure, loss of consciousness due to head trauma (i.e. trauma was the initial event), or if unable to provide accurate details. For analysis, we will use descriptive statistics and multivariable logistic regression for model development. The area under the receiver operating characteristic curve with a 95% confidence interval (CI) will be reported. The classification performance at different score thresholds and the risk categories for 30-day SAE will be assessed with 95% CI using sensitivity, specificity, negative and positive predictive values. Calculation of likelihood ratios will estimate probability of SAE given their total score.

Conclusion: Once validated, the tool could reduce the number of patients transported to hospital by identifying those at low risk. This would improve patient-oriented care, while saving valuable paramedic and ED resources.