

rate for low back pain increased from 12% (95% CI 9.9-14.5) to 16.2% (95% CI 13.6-19.2) following the intervention ($p = 0.023$). **Conclusion:** We previously demonstrated a trend towards increased awareness and knowledge of the CWC EM recommendations following a knowledge translation initiative. Baseline XR imaging rates for low back pain were lower than what has been reported. We observed that our intervention was associated with an increased frequency of imaging for low back pain. This may be due to a contrarian effect. We feel this calls into question the role of knowledge translation initiatives where physician practice already closely adheres to pre-established recommendations.

Keywords: Choosing Wisely, physician awareness, knowledge translation

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The Pulmonary Embolism Severity Index (PESI) score and disposition decisions in Calgary emergency departments

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Introduction: The Pulmonary Embolism Severity Index (PESI) score predicts short-term mortality from pulmonary embolism and low-risk patients suitable for home therapy. However, it is unknown if it is a driver for disposition decisions for emergency department (ED) patients. The primary objective of this study was to define the relationship between disposition decisions and the PESI score in Calgary zone hospitals. **Methods:** The PESI score was calculated retrospectively for 576 patients presenting to one of four Calgary zone hospitals for pulmonary embolism over the last 2 years. The calculated PESI score allowed the mortality risk of each patient to be estimated for very low risk (Class I, 0-1.6% 30-day mortality rate), low risk (Class II, 1.7-3.5% 30-day mortality rate), intermediate risk (Class III, 3.2-7.1% 30-day mortality rate), high risk (Class IV, 4.0-11.4% 30-day mortality rate), and very high risk (Class V, 10.0- 24.5% 30-day mortality rate). The patients were grouped based on being admitted to the hospital for inpatient care, or discharged for outpatient care. Descriptive statistics were used to describe the data. **Results:** Of the 576 patients, 317 (55%) were discharged and 259 (45%) were admitted to the hospital for inpatient care. Among admitted patients, 20.5% were considered Class I, 29.3% were Class II, 24.3% were Class III, 17.6% were Class IV, and 8.1% were Class V. Among discharged patients, 53.9 % were Class I, 25.6% were Class II, 15.5% were Class III, 4.4% were Class IV, and 0.6% were Class V. Of the 25 very high-risk (Class V) patients, 2 (8.0%) were discharged from the ED and treated as outpatients. Of the 223 very low risk (Class I) patients, 171 (76.7%) were discharged and 52 (23.3%) were admitted to hospital. **Conclusion:** A significant percentage of pulmonary embolism patients admitted to Calgary Zone hospital wards are PESI low risk (29.3%) or very low risk (20.5%). Implementation of a PESI score-based disposition pathway could improve the safety, cost-effectiveness and quality of ED disposition decisions for PE.

Keywords: pulmonary embolism, admission avoidance, clinical decision rules

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A systematic review of the psychometric properties and diagnostic performance of instruments to identify mental health and substance use problems among children in the emergency department

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Introduction: The objective of this systematic review was to investigate the psychometric properties and diagnostic performance of instruments

used in the emergency department to identify pediatric mental health and substance use problems. **Methods:** A search of seven electronic databases and the grey literature was conducted. Studies assessing any instrument to identify and or diagnose mental illness, emotional or behavioural problems, or substance use disorders in pediatric patients with presentations for mental health or substance use issues were considered eligible for inclusion. Two independent reviewers judged the relevance and study quality of the studies. A descriptive analysis of the outcomes was reported. **Results:** From 4832 references, 14 studies were included. Eighteen instruments were evaluated for identifying suicide risk, alcohol use disorders, mood disorders, and ED decision-making. The HEADS-ED has good inter-rater reliability ($r = 0.785$) for identifying general mental health problems and modest evidence for ruling out patients requiring hospital admission (positive likelihood ratio, $LR^+ = 6.30$). The internal consistency varied for tools to screen for suicide risk ($\alpha = 0.46-0.97$); no tools have both high sensitivity and high specificity. The Ask Suicide-Screening Questionnaire (ASQ) is highly sensitive (98%) and provides strong evidence to rule out risk (negative likelihood ratio, $LR^- = 0.04$). Among tools to screen for alcohol use disorders, a two-item tool based on DSM-IV criteria was found to be the most accurate in identifying patients with a disorder (area under the curve: 0.89), and has modest evidence to rule in and rule out risk ($LR^+ = 8.80$, $LR^- = 0.13$). **Conclusion:** Reliable, valid, and accurate instruments are available for use with pediatric mental health ED visits. Based on available evidence, emergency care clinicians are recommended to use the HEADS-ED to rule in ED admission, ASQ to rule out suicide risk, and DSM-IV two-item tool to rule in/rule out alcohol use disorders.

Keywords: pediatrics, mental health, emergency department

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Assessment of pain management during transport of intubated patients in a prehospital setting

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Introduction: While methods have been developed to assess pain and provide analgesia to hospitalized intubated patients, little is known about current EMS practices in providing similar care during air and land medical transports. Therefore, we sought to determine if opioid analgesia is provided to intubated patients during transportation in out-of-hospital setting. **Methods:** We conducted a health record review examining electronic records of intubated patients transported by Ornge in 2015. Ornge is the exclusive provider of air and land transport of critically ill patients in Ontario, Canada with over 18,000 transports per year. We identified cases using Ornge's database and selected intubated patients meeting inclusion criteria. A standardized data extraction form was piloted and used by a single trained data extractor. The primary outcome was frequency of administration and dose adequacy of an opioid analgesic. Secondary outcomes included: choice of analgesics used (fentanyl, hydromorphone or morphine), adverse events, and impact of age, sex, or reason for transfer on pain management. We present descriptive statistics. **Results:** Our strategy identified 500 potential cases, of which 448 met our inclusion criteria. Among those 448 patients, 154 (34.4%) were females, 328 (73.4%) received analgesia and 211 (64.3%) received more than one dose during transport (median frequency of 2 doses, IQR = 1 to 3). The average transport time was 148 minutes and repeated dosing (>1 repeat dose) occurred primarily (45.5%) in transports of over 180 minutes. Fentanyl was the most commonly used analgesic (97.6%) and most commonly used dose was