Comparing Point-of-Care Ultrasound With X-Rays in Pediatric Physeal Injuries

Take Home Point: Point-of-care ultrasound (POCUS) demonstrated a high sensitivity in detecting traumatic bone and physeal fractures in children. However, it had only moderate concordance with x-rays (XR) in assessing the extension of the fracture into the joint space and Salter-Harris classification.

Citation: Gurkan O, Kozaci N, Colak S, et al. Diagnostic accuracy of point-of-care ultrasonography in physeal fractures. *Am J Emerg Med*. 2026 Feb;100:198-204. doi: 10.1016/j.ajem.2025.12.009.

Relevance: Limb injuries in children are a common presentation to urgent care centers (UCCs). In settings where radiology technicians are not always available on-site, point-of-care ultrasound may serve as an alternative imaging modality.

Study Summary: This prospective study was conducted in the emergency department (ED) of a single university hospital in Turkey. Pediatric patients with suspected growth plate (physeal) fractures based on physical examination were enrolled. Four experienced emergency physicians who routinely used point-of-care ultrasound participated in the study. Each patient was evaluated (history and physical examination) by 2 physicians and then one performed the point-of-care ultrasound examination and the other interpreted x-rays. Both physicians interpreted imaging findings in a blinded manner.

The authors recruited 117 patients, of whom the presence or absence of bone fractures was accurately identified in 112 patients during POCUS examination and 85 patients on x-ray. Compared with XR, POCUS demonstrated a sensitivity (Sn) of 97%, specificity (Sp) of 94%, positive predictive value (PPV) of 98%, negative predictive value (NPV) of 91% (area under curve [AUC] 0.951; 95% confidence interval [CI] 0.90–1.00), and a κ value of 0.894 in detecting fractures. In detecting physeal fractures, POCUS showed Sn of 93%, Sp of 95%, PPV of 74%, NPV of 99% (AUC 0.942; 95% CI 0.87–1.00), and a κ value of 0.794. For detecting the extension of the fracture into the joint space, POCUS showed a Sn of 62%, a Sp of 100%, a PPV of 54%, a NPV of 10% (AUC: 0.810; 95% CI: 0.68–0.94), and a κ value of 0.727. Moderate concordance was observed between POCUS and XR for Salter-Harris classification (κ=0.673).

Editor's Comments: Overall, this study demonstrated that POCUS was effective in detecting the presence of extremity and physeal fractures. The study may have limited generalizability due to its single site, and the use of very experienced POCUS emergency physicians. However, advances in ultrasound technology and artificial intelligence-guided support could allow UCCs to use ultrasound more effectively in the evaluation of extremity injuries thus improving patient care and reducing unnecessary transfers. ■

Ivan Koay MBChB, MRCS, FCUCM, FRNZCUC, MD, is an urgent care physician and Convenor of Ireland and UK Faculty of the Royal New Zealand College of Urgent Care as well as the London Representative Faculty of Prehospital Care of the Royal College of Surgeons, Edinburgh.

Chest Pain Evaluation and Management in Female Patients

Take Home Point: Evaluation and management of chest pain should account for biological differences as well as social and systemic factors that influence access to care in biologically female patients.

Citation: Diercks D, Cao M, McHugh M, et al. Evaluation and management of chest pain from cardiovascular causes in female patients. *BMJ*. 2026;392:e086177. doi: 10.1136/bmj-2025-086177.

Relevance: Chest pain is a common presentation to UC. Despite advances in clinical awareness and diagnostic tools, significant sex-based disparities persist in recognition and management among female patients.

Study Summary: This systematic review evaluated factors contributing to under-recognition of cardiac causes of chest pain in female patients. The authors searched PubMed using the terms "sex" AND "chest pain" and noted the distinction between biological sex and gender ("sex, female" and "gender, woman") in their inclusion criteria.

Female patients were more likely to present with at least 3 associated symptoms, including epigastric pain, palpitations, and discomfort in the jaw, neck, arms, or between the shoulder blades. Additional symptoms more frequently reported included fatigue, anxiety, dyspnea, dyspepsia, and nausea. Risk factors more prevalent in female patients included tobacco use, type 2 diabetes mellitus, and psychological diagnoses such as anxiety and depression. A family history of diabetes was more strongly associated with acute myocardial infarction in younger female patients.

Physiologic differences may also affect evaluation by affecting the severity of electrocardiography (ECG)-based ischemia. These include lower QRS voltage due to smaller cardiac muscle mass, estrogen-related electrophysiologic effects (similar to digoxin-like effects), and variation in estradiol levels during the menstrual cycle. Additional considerations include older patients, who may present with atypical symptoms; patients with polycystic ovary syndrome, who have increased cardiovascular risk independent of body mass; and peripartum patients, who have higher risk of acute myocardial infarction and spontaneous coronary artery dissection.

Editor's Comments: This review highlights the importance of recognizing biologic and clinical differences when evaluating chest pain in female patients. Reliance on traditional symptom patterns and ECG findings alone may lead to missed diagnoses. Incorporating these distinctions into clinical assessment may improve diagnostic accuracy and patient care. ■

TWIST Score Evaluation and Point of Care Ultrasound in Children

Take Home Point: The Testicular Workup for Ischemia and Suspected Torsion (TWIST) score and point-of-care ultrasound (POCUS), when performed by emergency physicians and pediatricians, were useful for diagnosing testicular torsion. Assessment of testicular blood flow combined with identification of the whirlpool sign improved sensitivity.

Citation: Nakamura T, Kinoshita M, Ihara T, et al. Evaluating the TWIST score and point-of-care ultrasound for paediatric testicular torsion. *Emergency Medicine Journal.* 2026. doi: 10.1136/emermed-2025-215067

Relevance: Acute scrotal and testicular pain is a common presentation in the emergency department and urgent care settings, and may result from many diagnoses. Rapid identification of testicular torsion is essential to reduce the risk of long-term morbidity.

Study Summary: This retrospective observational study was conducted at Tokyo Metropolitan Children's Medical Center. Patients ≤15 years of age presenting with acute scrotal pain were evaluated in the emergency department by an emergency physician or pediatrician using the TWIST score and point-of-care ultrasound. All patients underwent point-of-care ultrasound regardless of TWIST score risk category.

Key ultrasound findings for testicular torsion included reduced or absent intratesticular blood flow and the whirlpool sign, defined as a swirling or spiral configuration of the spermatic cord (indicating twisting and usually seen on color Doppler). The primary outcome was diagnostic accuracy of the TWIST score and point-of-care ultrasound when performed by emergency physicians and pediatricians.

A total of 512 patients were included, of whom 55 (11%) were diagnosed with testicular torsion and 457 (89%) with other causes of acute scrotal pain. The TWIST score demonstrated Sn of 91% (95% confidence interval 80–97%), Sp of 95% (95% confidence interval 93–97%), PPV of 63% (95% confidence interval 50–75%), and NPV of 99% (95% confidence interval 97–100%). Reduced or absent blood flow on point-of-care ultrasound demonstrated high sensitivity and specificity, while the whirlpool sign demonstrated high specificity. Although the TWIST score and POCUS had high diagnostic accuracy, the non-negligible, false-negative rate indicated that the TWIST score should be used for risk stratification rather than as an exclusionary method.

Editor's Comments: The study did not assess clinician experience with point-of-care ultrasound, which may affect interpretation of results. Lack of blinding and a high exclusion rate may also introduce selection bias. However, findings support the role of the TWIST score and point-of-care ultrasound in differentiating testicular torsion from other causes of scrotal pain and may assist urgent care clinicians in clinical decision-making. ■

Approach to Mallet Finger Injury

Take Home Point: Mallet finger injuries can be recognized and managed in primary care and urgent care settings.

Citation: Dinh V, Market M, Cheung K. Approach to mallet finger injury: Practical guide for Canadian primary care

physicians. *Can Fam Physician*. 2026;72(2):93-97. doi: 10.46747/cfp.720293.

Relevance: Hand and finger injuries are common presentations to urgent care. Effective management in the appropriate clinical setting is important to ensure good cost-effective outcomes.

Study Summary: This review and practical guide reviews current evidence and best practices for management of mallet finger injuries in primary care. The authors conducted literature searches using PubMed and Google Scholar, which incorporated clinical evidence and expert opinion to develop their recommendations.

Diagnosis is based on mechanism of injury (an axial load) and an inability to actively extend the distal interphalangeal (DIP) joint. Most injuries are treated nonoperatively with splinting, particularly in the absence of fracture. The goal of splinting is to maintain the distal interphalangeal joint in extension to allow extensor tendon healing. Splint options include plastic splints, aluminum foam splints, and custom thermoplastic splints. Evidence from a systematic review and retrospective study suggests equal effectiveness across splint types.

Surgery referral should be considered for avulsion fractures resulting in joint subluxation, open injuries, and failure of conservative management. Delayed presentation, defined as more than 4 weeks after injury, was associated with a 25% risk of persistent extensor lag or small deformity on the dorsum of the finger. Referral is recommended for mallet finger injury cases with joint subluxation identified on x-ray imaging.

Editor's Comments: This is a practical guide to management of mallet finger injuries. The authors have practical and recognized approaches to management based on best practice and published evidence. Of note, local recommendations and orthopedic physician preference may differ geographically. However, this is an excellent reference for urgent care clinicians. ■

Concussion and Risk of Suicide Among Youth and Young Adults

Take Home Point: In this population-based study, concussion was associated with an increased risk of suicide among youth and young adults, supporting the need for risk screening in this population.

Citation: Yang J, Brock G, Steelesmith D, et al. Association Between Concussion and Risk of Suicide Among Youth and Young Adults. *Am J Prev Med*. 2026;70(3):108127.

Relevance: Concussion is a common consequence of head injury and may present in urgent care settings, particularly among young athletes. There is concern for increased risk of suicidal ideation and death by suicide in affected patients.

Study Summary: This retrospective longitudinal cohort study evaluated the association between concussion and suicide among youth and young adults (ages 5-24) using Ohio Medicaid data. Patients with a concussion comprised the exposed group, and those with an orthopedic injury served as the comparison group. Data were obtained from Ohio Medicaid claims and state death certificate records.

A total of 41,341 patients with concussion and 376,171 with orthopedic injury were included. There were 42 suicides in the concussion group and 229 in the orthopedic injury group. The concussion group had a higher unadjusted hazard for suicide (hazard ratio 1.86; 95% CI 1.34–2.59; p<0.001). Cumulative incidence of suicide risk increased steadily over time rather than peaking shortly after injury. The 5-year estimated suicide risk was 0.084% (95% CI 0.057%–0.111%) in the concussion group and 0.050% (95% CI 0.042%–0.058%) in the orthopedic injury group. This represented a risk difference of 0.034% (95% CI 0.006%–0.061%) or 34 additional suicides per 100,000 individuals. Stratified analyses by sex, age, race, mental health conditions, and suicidal ideation revealed variation but no statistically significant differences.

Editor's Comments: Use of a single-state Medicaid population may limit generalizability to youth in other states or those with different insurance coverage. Strengths include a large and diverse sample size, use of an injury-exposed comparison group, and longitudinal follow-up for subsequent concussions with adjustment for multiple confounders. These findings support consideration of suicide risk screening in patients with concussion. Urgent care clinicians should remain cognizant of concussion-associated risks and provide appropriate screening. ■

Preventing Post Vaccination Presyncope and Syncope of Teenagers

Take Home Point: Use of a vibration and cooling device (Buzzy) to reduce injection site pain and distraction with

a video game reduced presyncope in adolescents receiving vaccinations.

Citation: Smith M, Harrington T, Chung R, et al. Preventing Postvaccination Presyncope and Syncope in Adolescents: A Randomized Controlled Trial of a Clinic-Based Intervention. *J Pediatr.* 2026;293:115035.

Relevance: Syncope is a known adverse event associated with vaccination. Strategies to reduce this risk can improve patient safety and experience from vaccination.

Study Summary: This single-site, randomized, open-label trial evaluated the combination of a vibration and cooling device (Buzzy) and simultaneous distraction via a video game in adolescents (ages 10-14) receiving at least 1 intramuscular vaccination at Duke University Health System. Participants were randomized 1:1 to the intervention or standard care using block randomization of 10. Anxiety was assessed using the Patient-Reported Outcomes Measurement Information System Pediatric Anxiety Short Form version 2.0 8a instrument.

A total of 332 participants were enrolled and randomized, with 165 assigned to the intervention group and 167 to the control group. The intervention (combination of Buzzy and video games) reduced the risk of postvaccination presyncope by 12%. Mean pain scores were higher in the control group compared with the intervention group (3.26 vs 2.51; p=0.006).

Most participants reported positive experiences with video games; 81% indicated they would use them again during future vaccinations. At 1 minute after vaccination, 151 participants (91.5%) continued playing, and 133 (80.6%) continued at 10 minutes.

Editor's Comments: The study design did not allow separation of the efficacy of the Buzzy device and distraction, which may affect interpretation of the results. Lack of blinding may also influence reported outcomes, specifically pain and presyncopal symptoms. These findings support the use of distraction techniques during painful procedures for adolescents.

This may offer practical applications for urgent care clinicians when performing similarly painful procedures. Further research is needed in the urgent care setting and with additional procedures beyond vaccination. ■