

prevalence and correlates of Sexual Assault Evidence Kit (SAEK) completion and release to police among sexual assault cases presenting at the hospital emergency department. **Methods:** Data for this cross-sectional study come from the Sexual Assault and Partner Abuse Care Program (SAPACP) case registry (Jan1-Dec31, 2015) at The Ottawa Hospital, a unique medical-forensic access point and the only facility offering SAEK collection in Ottawa. Bivariable and multivariable logistic regression models were conducted using odds ratios (OR), adjusted ORs, and 95% confidence intervals (CI). **Results:** In 2015 406 patients were seen by the SAPACP and 202 (77.10%) were eligible for a SAEK. Among eligible cases, 129 (63.86%) completed a SAEK and only 60 (29.70%) released the SAEK to police for investigation. Youth cases below 24 years of age (AOR:2.23, 95% CI: 1.18-4.23) and presenting within 24h (AOR:0.93-3.40) were the strongest independent factors contributing to SAEK completion. Cases who were uncertain of the assailant (AOR:3.62, 95% CI:1.23-10.67) and assaults that occurred outdoors (AOR:3.14, 95% CI:1.08-9.09) were the cases most likely to release the SAEK to police. **Conclusion:** Our study has shown high attrition levels along the continuum of care and justice for sexual assault case. Even with access to specialized forensic evidence collection, many do not complete a SAEK and even fewer release the evidence to police for legal investigation.

Keywords: sexual assault, forensics

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Necrotizing soft tissue infection: diagnostic accuracy of physical examination, imaging and LRINEC score a systematic review and meta-analysis

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Introduction: Necrotizing soft tissue infection (NSTI), a potentially life-threatening diagnosis, is often not immediately recognized by clinicians. Delays in diagnosis are associated with increased morbidity and mortality. We sought to summarize and compare the accuracy of physical exam, imaging, and Laboratory Risk Indicator of Necrotizing Fasciitis (LRINEC) Score used to confirm suspected NSTI in adult patients with skin and soft tissue infections. **Methods:** We searched Medline, Embase and 4 other databases from inception through November 2017. We included only English studies (randomized controlled trials, cohort and case-control studies) that reported the diagnostic accuracy of testing or LRINEC Score. Outcome was NSTI confirmed by surgery or histopathology. Two reviewers independently screened studies and extracted data. We assessed risk of bias using the Quality Assessment of Diagnostic Accuracy Studies 2 criteria. Diagnostic accuracy summary estimates were obtained from the Hierarchical Summary Receiver Operating Characteristic model. **Results:** We included 21 studies (n = 6,044) in the meta-analysis. Of physical exam signs, pooled sensitivity and specificity for fever (49.4% [95% CI: 41.4-57.5], 78.0% [95% CI: 52.2-92.0]), hemorrhagic bullae (30.8% [95% CI: 16.2-50.6], 94.2% [95% CI: 82.9-98.2]) and hypotension (20.8% [95% CI: 7.7-45.2], 97.9% [95% CI: 89.1-99.6]) were generated. Computed tomography (CT) had 88.5% [95% CI: 55.5-97.9] sensitivity and 93.3% [95% CI: 80.8-97.9] specificity, while plain radiography had 48.9% [95% CI: 24.9-73.4] sensitivity and 94.0% [95% CI: 63.8-99.3] specificity. Finally, LRINEC 6 (traditional threshold) had 67.5% [95% CI: 48.3-82.3] sensitivity and 86.7% [95% CI: 77.6-92.5] specificity, while a LRINEC 8 had 94.9% [95% CI: 89.4-97.6] specificity but 40.8% [95% CI: 28.6-54.2] sensitivity. **Conclusion:** The absence of any one physical exam feature (e.g. fever or hypotension) is not sufficient to rule-out NSTI. CT is superior to plain radiography. The LRINEC Score had poor sensitivity,

suggesting that a low score is not sufficient to rule-out NSTI. For patients with suspected NSTI, further evaluation is warranted. While no single test is sensitive, patients with high-risk features should receive early surgical consultation for definitive diagnosis and management.

Keywords: necrotizing soft tissue infection, computed tomography, laboratory risk indicator for necrotizing fasciitis

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Increased mortality and costs in emergency department sepsis patients with delayed intensive care unit admission

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Introduction: Sepsis remains a major cause of mortality. In the Emergency Department (ED), rapid identification and management of sepsis have been associated with improved outcomes. Following ED assessment, patients with infection may be directly admitted to the Intensive Care Unit (ICU), or alternatively admitted to hospital wards or sent home, with risk of future deterioration necessitating ICU admission. Little is known regarding outcomes and costs of ICU sepsis patients who are initially admitted to a ward or discharged home (delayed ICU admission), as compared to those with direct ICU admission from the ED. **Methods:** We analyzed a prospectively collected registry (2011-2014) of patients admitted to the ICU with a diagnosis of sepsis at two academic hospitals. We included all adult patients with an index ED visit within 72 hours of ICU admission. Patients were categorized into 3 groups: 1) Admitted directly to ICU; 2) Admitted to wards, with ICU admission within 72 hours; and 3) Sent home, with ICU admission within 72 hours. ICU length of stay (LOS) and total costs (both direct and indirect) were recorded. The primary outcome, in-hospital mortality, was analyzed using a multivariable logistic regression model, controlling for confounding variables (including patient sex, comorbidities, and illness severity). **Results:** 657 ICU patients were included. Of these, 338 (51.4%) were admitted directly from ED to ICU, 246 (37.4%) were initially admitted to the wards, and 73 (11.1%) were initially sent home. In-hospital mortality was lowest amongst patients admitted directly to the ICU (29.5%), as compared to patients admitted to ICU from wards (42.7%), or home (61.6%). Delayed ICU admission was associated with increased odds of mortality (adjusted odds ratio 1.85 [1.24-2.76], $P < 0.01$) and increased median ICU LOS (11 days vs. 4 days, $P < 0.001$). Median total costs were lowest among patients directly admitted to the ICU (\$19,924, [Interquartile range [IQR], 10,333-32,387]), as compared to those admitted from wards (\$72,155 [IQR, \$42,771-122,749]) and those initially sent home (\$45,121 [IQR, \$19,930-86,843]). **Conclusion:** Only half of ED sepsis patients ultimately requiring ICU admission within 72 hours of ED arrival are directly admitted to the ICU. Delayed ICU admission is associated with higher mortality, LOS, and costs.

Keywords: sepsis, shock, critical care

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Predictors of oral antibiotic treatment failure for non-purulent skin and soft tissue infections in the emergency department

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