

and death. Endoscopy is important in the management of LGIB, however gastroenterologists have limited resources to safe endoscopy. Risk stratification of LGIB patients can aid physicians in disposition decisions. **Objective:** to develop a clinical decision tool to accurately identify LGIB patients presenting to the emergency department (ED) who are at risk for 30-day serious adverse events. **Methods:** We conducted a health records review and included 372 adult ED patients who presented with an acute LGIB. The outcome was a 30-day composite outcome consisting of all-cause death, recurrent LGIB, need for intervention to control the bleed and ICU admission. A second researcher confirmed data-collection of 10% of the data and we calculated a κ -value for inter-rater reliability. We analyzed the data using stepwise backwards selection and SELECTION=SCORE option and calculated the diagnostic accuracy of the final model. **Results:** Age 75 years, hemoglobin 100 g/L, INR 2.0, a bloody stool in the ED and a past medical history of colorectal polyps were significant predictors in the multivariable regression analysis. The AUC was 0.83 (95% CI 0.77-0.89), sensitivity 0.96 (0.90-1.00), specificity 0.53 (0.48-0.59), and negative likelihood ratio 0.08 (0.02-0.30) for a cut-off score of 1. **Conclusion:** This model showed good ability to identify LGIB patients at low risk for adverse events as evidenced by the high AUC, sensitivity and negative likelihood ratio. Future, large prospective studies should be done to confirm the data, after which it should be validated and implemented.

Keywords: lower gastrointestinal bleeding, decision tool, risk stratification

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Ready for the story? A mixed methods systematic review of factors that influence handovers between prehospital personnel and emergency department nurses receiving patients arriving by ambulance

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Introduction: Safe and efficient handovers between emergency medical services (EMS) practitioners and emergency nurses are vital as poor transitions may lead to loss of information and place patients at risk for adverse events. We conducted a mixed methods systematic review to a) examine factors that disrupt or improve handovers from EMS practitioners to emergency department nurses, and b) investigate the effectiveness of interventional strategies that lead to improvements in communication and fewer adverse events. **Methods:** We searched electronic databases (DARE, MEDLINE, EMBASE, Cochrane, CINAHL, Joanna Briggs Institute EBP; Communication Abstracts); grey literature (grey literature databases, organization websites, querying experts in emergency medicine); and reference lists of the included studies. Citation tracking was conducted for the included studies. Two reviewers independently screened titles/abstracts and full-texts for inclusion and methodological quality using the Effective Public Health Practice Project Quality Assessment Tool for quantitative studies and the Joanna Briggs Institute Critic Appraisal Checklist for Qualitative Research. Narrative and thematic synthesis were conducted to integrate and explore relationships within the data. **Results:** Twenty-two studies were included in this review from the 6150 records initially retrieved. Our analysis suggests that qualitative, quantitative, and mixed methods research approaches have been utilized to explore handovers. Studies ($n=11$) have predominantly explored existing patterns of handovers focusing on barriers and facilitators. Interventions (e.g. multimedia transmission of pre-hospital information, tailored e-learning program) were investigated in five studies. Results suggest that lack of formal

handover training, workflow interruptions, workload, and strained working relationships between EMS and nursing are perceived threats to optimal handovers. **Conclusion:** The findings from this review can inform the development of handover interventions and contribute to a more rigorous approach to researching handovers between EMS practitioners and emergency nurses. Furthermore, there is a need for studies in which specific interventions to optimize handovers are examined.

Keywords: handovers, emergency medical services, emergency department nurses

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Mental practice for technical skills training in emergency medicine: a scoping review

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Introduction: Emergency physicians must achieve and maintain competence in numerous procedural skills, many of which are high stakes, time dependent, and used infrequently in clinical practice. Mental practice (MP) is the systematic use of mental imagery to see and feel an action in ones imagination without engaging in actual physical movement, and has been shown to enhance skill acquisition and performance in music and athletics. In this scoping review, we describe the utility and effectiveness of MP as a tool for procedural skill acquisition in medicine. **Methods:** An electronic search of MEDLINE, EMBASE, the Cochrane Library, CINAHL, PsycINFO, Open Grey, Conference Proceedings Index, ProQuest Dissertations and Theses and Google Scholar was conducted. Included studies evaluated MP for learning medically related technical skills using any method of mental training (script memorization, hypo-therapy, psychotherapy). Two independent reviewers screened articles for inclusion, and data was extracted using a standardized tool. **Results:** Our search returned 2028 results, of which 61 were eligible for inclusion. Forty-three studies evaluated MP interventions for technical skill development. Of these, 69.6% focused on minimally invasive surgical skills. The most common outcome measure was quantitative evaluation of skill via observer-scored checklist (69.6%). Other outcomes included stress, time to task completion, and haptic and movement data from surgical simulators. 82.6% of studies demonstrated a positive effect of MP on skill acquisition or performance. The quality of the trials was modest, and only 34.7% of published work provided clear detail on specific MP strategies. **Conclusion:** MP is an effective tool for procedural skills training. Areas outside of minimally invasive surgery are under-represented, and more data is needed on MP for rare or emergent procedures that typify emergency care. The minority of studies reviewed reported methods for developing and validating MP interventions in sufficient detail, a practice that should be adopted in future trials.

Keywords: mental practice, airway, cricothyroidotomy

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A new in-skates balance error scoring system for the sideline assessment of concussion in hockey players

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Introduction: During a hockey game, athletes who are suspected of having sustained a concussion are removed from the game and evaluated. The modified balance error scoring system (MBESS) assessment, an essential part of the concussion evaluation, is performed in the dressing room, barefoot on a hard surface after equipment removal.