

implementation. **Results:** A total of 14 shifts were observed, accounting for 112 hours of observation. EP's time was allocated amongst the following categories: direct patient interaction (40.8%), documentation (27.1%), reviewing patient results (18.4%), communicating with ED staff (7.63%), personal activities (5.7%), writing orders (5.1%), communicating with consultants (3.3%), teaching (1.7%) and medical information searches (1.3%). On average, EPs experienced 15.8 interruptions over the course of an 8 hour shift. **Conclusion:** In a paper charting system, the direct patient interaction accounts for the largest timeshare over the course of a given shift. However, the next two largest categories, documentation and reviewing patient data, both represent areas of potential streamlining via clerical improvements. Additionally, detailed measurements of EPs' activities have proven feasible and provides the potential for future insight into the impact of EHR's on EP workflow.

Keywords: productivity, time-motion, workflow

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The BPPV Tool: designing a smartphone app to aid in the diagnosis of benign paroxysmal positional vertigo

L. Farnell, BSc, M. Anderson, D. Savage, MD, PhD, R. Ohle, MSc, MBChB, MA, Northern Ontario School of Medicine, Sudbury, ON

Innovation Concept: Dizziness is an increasingly common presenting complaint in the emergency department (ED), accounting for >2% of visits annually or almost 30% of visits in patients aged over 65. Approximately half of all cases of dizziness in older adults are caused by benign paroxysmal positional vertigo (BPPV). The use of computerized tomography (CT) to rule out serious but rare underlying central nervous system (CNS) causes in patients with dizziness in the ED is increasing despite guidelines supporting the use of clinical exam maneuvers such as the Dix-Hallpike test and therapeutic canalith repositioning maneuvers. Evidence indicates that these clinical tools are underutilized due to clinician discomfort or lack of understanding in performing and interpreting the maneuvers, supporting brief and accessible clinical resources that incorporate video examples to address this. **Methods:** Through an iterative process the authors have developed a smartphone app that is designed to facilitate the clinical diagnosis of BPPV and provide treatment maneuvers where appropriate. The app is being tested by clinicians practicing emergency medicine or primary care in Northern Ontario. **Curriculum, Tool, or Material:** The BPPV Tool is designed as a step-wise guide to diagnose BPPV. Clinicians will be prompted to perform specific exam maneuvers based on clinical findings, and can follow short example videos or written directions. Potentially precipitated nystagmus is described along with example videos. Provocative tests include the Dix-Hallpike and Supine Roll. If appropriate, the clinician will be prompted to perform therapeutic repositioning maneuvers such as the Epley or Gufoni, with associated sample videos, descriptions, and billing information where available. If at any point a clinician's exam findings are not in keeping with a diagnosis of BPPV, they will be alerted to this and stop progressing through the app. **Conclusion:** The BPPV Tool is an accessible and easily disseminated smartphone app designed to improve clinician comfort in reliably diagnosing BPPV. Diagnosing this common condition clinically is supported in the literature and can reduce the number of unnecessary CT scans performed, which would reduce healthcare costs and ED length of stay for these visits, and could reduce the number of patient transfers from peripheral sites for imaging.

Keywords: benign paroxysmal positional vertigo, innovations in EM education, mobile app

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Use of activity trackers to count steps of older emergency department patients: a feasibility and validity study

J. Estrada-Codecido, MD, MSc, J. Lee, MD, MSc, M. Chignell, PhD, C. Whyne, PhD, University of Toronto/Sunnybrook Health Science Centre, Toronto, ON

Introduction: Mobility is an evidence-based non-pharmacologic strategy shown to reduce delirium and functional decline among older patients in the acute care setting. Activity trackers have been used in previous studies to objectively measure mobility in older hospitalized patients. This study aims to compare the feasibility and validate the accuracy of three accelerometer-based activity trackers (Fitbit Zip, Fitbit Charge HR and StepWatch). This is the first step in a program of research to objectively measure as a potential marker of delirium risk. **Methods:** This is a prospective study of patients 65 years of age and older during their ED visit. We excluded those with critical illness, unable to communicate or provide consent; and any ambulatory impediments. Consenting participants wore the trackers for up to 8 hour, and completed a 6-meter walk test while a research assistant manually counted their steps. Our primary feasibility measure was the proportion of eligible patient for which we were able to recover the tracker and recorded their steps. The primary validation endpoint was the concordance between steps recorded by the tracker compared to a gold standard manual step count over a fixed distance. Sample size was based on the desired precision of the final estimate of feasibility. Intraclass correlation coefficient (ICC) was calculated to assess agreements between devices and manual count. We will report proportions with exact binomial 95% confidence intervals (CI) for feasibility and validity endpoints. **Results:** 41 participants were enrolled in this study. Mean age was 74.6 years (+/- 5.76) and 59% were females. The total subjects that wore the Fitbit Zip, Fitbit Charge HR and StepWatch during study participation was, 40/41 (97.5%, CI 0.87–0.99), 33/34 (97%, CI 0.84–0.99) and 31/32 (96.8%, CI 0.83–0.99), respectively. Total subjects with completed data extracted from the Fitbit Zip, Fitbit Charge HR and StepWatch was, 38/41 subjects (92.6%, CI 0.80–0.98), 34 (100%, CI 0.89–1.00), and 32 (100%, CI 0.89–1.00), respectively. All devices were recovered after use (100%, 95% CI 0.91–100). **Conclusion:** Our results suggest: 1) the use of gait-tracking devices in the ED is feasible, 2) consumer and research-grade devices showed good validity against the gold standard, and 3) the use of small, inexpensive, consumer-grade trackers to objectively measure mobility of older adults in the ED.

Keywords: activity trackers, mobility, older adults

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Alcohol-related emergency department visits by youth aged 12-24: trends over 4 years in one Canadian centre

H. Murray, MD, MSc, L. Erlikhman, BA, T. Graham, BSc, M. Walker, PhD, Queen's University, Kingston, ON

Introduction: Recent evidence shows an increase in alcohol-related emergency department (ED) visits among youth. Highly publicized collegiate rituals such as Homecoming may create a climate for problematic alcohol use. This study describes the frequency of youth alcohol-related ED visits per year and during pre-specified ritualized