UNIVERSITY OF SASKATCHEWAN

2021 EMERGENCY MEDICINE RESEARCH DAY

AGENDA AND ABSTRACTS
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CAN PATIENTS PRESENTING TO THE ED WITH CHEST PAIN WHO HAVE INTERMEDIATE RISK HEART SCORES BE MANAGED AS OUTPATIENTS? A RETROSPECTIVE REVIEW OF TWO RAPID ACCESS CHEST PAIN CLINICS (LEACH)

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RESEARCH DAY AGENDA

GRAND ROUNDS LECTURE DR. CORDELL NEUDORF…….. 10:00-11:00
“Improving Health Equity: Health System Approach to
Population Health, QI, and Intersectoral Action”

RESEARCH PRESENTATIONS (PART 1)
  • EMERGENCY MEDICAL SERVICES.......................... 11:00-11:30
  • QUALITY IMPROVEMENT........................................ 11:30-12:00

EMERGENCY MEDICINE TEACHING AWARDS............. 12:00-12:15

LUNCH............................................................................. 12:15-1:00

RESEARCH PRESENTATIONS (PART 2)
  • CLINICAL MEDICINE .............................................. 1:00-2:15

BREAK............................................................................. 2:15-2:30

RESEARCH PRESENTATIONS (PART 3)
  • EDUCATION............................................................. 2:30-3:15

RESEARCH AWARDS....................................................... 3:15-3:45
REGINA EMS DRIVEN STEMI ALERTS (RED ALERTS)
Trajkovski A*, Heerspink B, Strangway K, Jamison, B.

INTRODUCTION:
As the first point of contact with the healthcare system, pre-hospital care (EMS) providers play an integral role in ST elevation myocardial infarctions (STEMI) recognition and time to reperfusion. Pre-hospital STEMI recognition triggers a protocolized pathway where EMS providers transfer the patient to a PCI capable facility, if it is within a 90-minute window. Studies have shown that EMS providers can recognize STEMIs on prehospital ECGs with high sensitivity and specificities. Our objective was to evaluate the sensitivity and specificity of EMS STEMI diagnoses in Regina.

METHODS:
This was a retrospective cohort study spanning January – December 2020, using Regina EMS patient data collected from two groups of patients: STEMI alerts (n=58) and a control cohort with a prehospital chief complaint of “chest pain” (n=58). Patients were screened via pre-hospital ECG diagnoses sequentially until the target numbers were met. In hospital catheterization diagnoses were the gold standard, if patients did not go to catheterization lab, in hospital physician diagnoses were used.

RESULTS:
A total 116 patient care reports were reviewed, with 62.1% male (n=72) and 37.9% female (n=44). Mean patient age was 64.1 years (SD = 13.1). Primary outcomes were a sensitivity of prehospital STEMI diagnosis of 82.8%, with 48 of 58 patients correctly diagnosed as STEMI. The specificity of prehospital STEMI diagnosis was 98.3%, with 57 of 58 patients correctly having a STEMI ruled out.

CONCLUSIONS:
Our findings demonstrate that Regina EMS ECG interpretation of STEMIs has a high sensitivity and a very high specificity. These findings support the current STEMI-alert system, which when activated in the field, informs the RGH ED of an incoming STEMI.

*University of Saskatchewan, College of Medicine, Department of Emergency Medicine, Regina General Hospital
RETROSPECTIVE ANALYSIS OF OUTCOMES OF NON-TRANSPORTED EMS PATIENTS IN A CANADIAN CENTER
Minhas R*, Boutin S, Leach A, Davis P, Premkumar K.

INTRODUCTION
Non-transport (NT) is an increasing outcome of patients calling for emergency medical services (EMS). NT garners high medicolegal risk. Investigators sought to elucidate outcomes of patients with NT presenting to a single EMS system at a Canadian center.

METHODS
Patients with NT were retrospectively identified between Jan 1 2018 – Dec 31 2019. Linkage by health service number (HSN) was used to identify re-presentation to EMS or to a local emergency department (ED) within 48 hours.

RESULTS
There were 9174 patients with NT screened, of which 1130 (12%) had a repeat EMS visit. Of patients with a repeat EMS visit, 382 (34%) had a subsequent repeat cancellation and 14 (1.2%) had an emergency transport to or between hospitals. There were 12 (1.1%) patients who suffered a cardiac arrest with EMS on repeat presentation, of which 4 (33%) were dead on arrival and 7 (58%) had resuscitation terminated on scene; only 1 was transported to hospital (8.3%). The most common reasons for repeat EMS presentations were, transfer between hospital 102 (9.0%), shortness of breath 94 (8.3%), fall 74 (6.5%), substance abuse 67 (5.9%), and abdominal pain 57 (5.0%).
Of all EMS visits, 1612 (16%) patients had a subsequent ED visit. Of ED presentations, 962 (60%) were discharged home, 350 (22%) were admitted, and 201 (12%) left against advice. There were 3 (0.2%) patients who died in the ED.
There were 33 (9.4%) admitted patients who died in hospital. Patients with a re-presentation to EMS were more likely to be admitted to hospital (OR=2, 95% CI 1.52 -2.64).

CONCLUSIONS
In this retrospective evaluation of NT, there was a significant proportion of patients who re-presented to EMS and to the ED. Many patients were admitted to hospital, and a small proportion died with EMS, in the ED, or in hospital (total n=48). This data highlights the significant risk associated with NT and suggests the need for further research into risk stratification tools which may guide safety of NT.
* Emergency Medicine Residency Program, University of Saskatchewan, Saskatoon, SK.
IDENTIFYING CRITICAL CARE SCENARIOS FOR WHICH THERE IS SIGNIFICANT VARIANCE IN MANAGEMENT ADVICE GIVEN BY TRANSPORT PHYSICIANS OF THE SHOCK TRAUMA AIR RESCUE SERVICE (STARS).

Dr. Leon Byker (intensivist), Dr. Terry Ross (Emergency physician), Dr. Erin Mannard (CCFP EM resident), Dr. Andrea Dann (CCFP EM resident)

INTRODUCTION:
The STARS transport team follows well established protocols with input from a transport physician in certain circumstances. Anecdotal evidence exists that there may be significant variance in the advice given by transport physicians for similar critical care scenarios. Little is known about the specific scenarios or the variance in advice given.

HYPOTHESIS/STUDY OBJECTIVE:
Identify critical care scenarios for which there is significant variance regarding the management advice given by transport physicians working for STARS air ambulance. These scenarios will be translated into educational priorities and answerable questions to design and implement educational interventions. Our aim is for these priorities to become part of the well-established quality improvement process already in place within the organization.

METHODS
This study will take place in three phases. Phase one will consist of an e-Delphi study to identify a list of the top critical care scenarios for which there is significant variance regarding management advice provided by transport physicians. Responses will undergo content analysis to identify major themes which will be used to generate a condensed list of priorities as identified by the expert panel. Phase I is the focus of our resident research project.

Phase two will consist of translating the identified scenarios into educational priorities and answerable questions, researching the evidence around it and finally designing and implementing educational interventions. The last phase will be a quality improvement initiative.

RESULTS
A total of 55 surveys were sent out, with 20 surveys fully completed, representing a response rate of 36%. Responses were coded into the following themes: Oxygenation/ventilation, cardiovascular, pharmacotherapy, specialty, communication and team dynamics, and no variation identified. Themes were further analyzed as sub-categories with the most commonly identified variances stemming from decisions to intubate, parameters of mechanical ventilation, managing hemodynamics, and transport decisions.

CONCLUSIONS
Significant variance in transport physician advice was identified in recommendations involving intubation and ventilation, management of hypotension, and transport decisions. After identifying major themes in transport physician recommendations, the project will move into phase II of the quality improvement project.
DIAGNOSTIC YIELD OF HEAD COMPUTED TOMOGRAPHY FOR ELDERLY EMERGENCY DEPARTMENT PATIENTS WITH DELIRIUM. A RETROSPECTIVE CHART REVIEW.
Butcher J, Smith M, Roberts L, Ellis B
University of Saskatchewan, Department of Emergency Medicine. Royal University Hospital. 103 Hospital Drive, Saskatoon, SK S7N 0W8.

INTRODUCTION:
Delirium in older people has a vast number of causes including life-threatening etiologies, making prompt recognition essential. Computed tomography of the head (CT-Head) may have a role in determining the cause of delirium, however inpatient studies suggest CT-Head is overused in older patients with delirium. There is currently a paucity of emergency department (ED) based research surrounding this area. This study aims to describe the diagnostic utility of CT-Head in older patients presenting to the ED with delirium.

METHODS:
We conducted a retrospective chart review of patients 65 years and older with suspicion for delirium who visited local EDs over a 3.5-year period (2016-2020). We compared patients who did and did not receive CT-Head. Our primary objective was to determine the proportion of acute findings in patients who received CT-Head for delirium. Our secondary objectives were to describe the proportions of patients who did and did not receive CT-Head in terms of their demographics, presenting symptoms, disposition from the ED, and their indications and findings on CT-Head scans. When comparisons were made, chi-squared tests were used to compare between groups.

RESULTS:
We found a total of 630 records meeting inclusion criteria. Of these, 138 were excluded due to presenting direct for consultant care or for reference to delirium irrelevant to their visit, leaving 492 records. Of those who received CT-Head (n = 279), only 13 (4.7%) had acute findings. Of those with acute findings, 4 (30.77%) had focal neurological deficits (FND) identified on chart review, and 2 (15.38%) had a GCS < 14. Delirious patients who did not receive CT-Head (n=214) were more likely to be discharged (p < 0.01) and less likely to have a FND (p < 0.01).

CONCLUSION:
CT-Head is ordered for over half of older ED patients with delirium despite infrequent acute findings. When acute findings on CT-Head occur, they are often in the context of symptoms suggestive of intracranial abnormalities. This suggests CT-Head could be better utilized in patients with delirium and additional clinical findings.
EXPLORING EMERGENCY DEPARTMENT REFERRALS FOR AN “ABNORMAL LAB VALUE”

Ghavami K, Mondal P, Davis PJ

1 College of Medicine, University of Saskatchewan, Saskatoon, SK

INTRODUCTION:
Within Saskatoon, Emergency Department (ED) referrals for an abnormal lab values (ALV) represent approximately 1% of visits. While some of these referrals are for further work-up and management of an abnormal CBC or electrolyte, some are for an elevated D-Dimer or Troponin, which can be harbingers of the time sensitive diagnoses of Venous Thromboembolism (VTE) and Acute Coronary Syndrome (ACS) respectively. As such, we wished to examine how common this practice was and if alternate pathways should be developed.

METHODS:
We identified a historical cohort of patients presenting with an ALV (Jan 1, 2019- Dec. 31, 2019). Variables collected included: age, gender, comorbidities, ALV referred for, ED length of stay, 30-day mortality, ED revisit within 30-days, complications, and proportion admitted. Data was analyzed using descriptive statistics.

RESULTS:
We identified 892 patients presenting to Saskatoon EDs with an ALV. Of these, 296 patients were excluded as they were “direct for consultant” and not primarily seen by an ED physician. Of the remaining 596 patients 197 (33.1%) presented with an abnormal CBC, 170 (28.5) with abnormal electrolytes, 17 (2.9%) with an elevated INR, 41 (6.8%) with elevated D-Dimer, 18 (3.0%) with elevated troponin, 73 (12.2%) with an abnormal culture, and 53 (8.9%) presented with another abnormality. Of the patients that presented with an elevated D-Dimer, only 5 (12.2%) were identified as having a VTE. Of the patients that presented with elevated Troponin, 8 (44.5%) had ACS.

CONCLUSIONS:
Given the small number of patients presenting with abnormal D-Dimer or troponins, an alternative care pathway is deemed unnecessary.
OUTCOMES OF FIRST NATIONS PATIENTS PRESENTING WITH ST-SEGMENT ELEVATION MYOCARDIAL INFARCTION TO A SINGLE ACADEMIC CENTER
Minhas R*, Morrison K, Frehlick R, Mondal P, Shavadia J, Davis P.

INTRODUCTION
First Nations (FN) patients in Canada have a higher burden of cardiovascular disease compared with non-FN patients. With care delivery evolving for ST-segment elevation myocardial infarction (STEMI), it remains unclear how clinical outcomes have changed in this high-risk patient population.

METHODS
Retrospectively studied, STEMI patients presenting to a single academic hospital between Jan 1-Dec 31 2018 were categorized as FN based upon non-insured health benefits status. Baseline demographics and univariate associations with the composite of all-cause in-hospital mortality and 30-day re-hospitalization were examined. Categorical values are expressed as count (percent) and continuous variables expressed as mean (standard deviation).

RESULTS
This study included 370 patients with STEMI; 33 (8.9%) were FN. FN compared with non-FN patients were more likely to be younger 56 (10) years vs. 65 (13) years: P<0.0001, have type 2 diabetes 13 (39.4%) vs. 81 (24%): p=0.05, alcohol abuse 5 (15.2%) vs. 19 (5.6%): p=0.05, intravenous drug use 4 (12.1%) vs. 6 (1.8%): p=0.007, current smoking history 27 (81.8%) vs. 139 (41.2%): P<0.0001, and longer travel distances to a PCI-capable center 183 (166) vs. 86 (101) km: P=0.0006.
Significantly higher baseline markers of necrosis are evident in FN compared with non-FN patients CK 1571 (1463) vs. 783 (1168): p=0.0003; Troponin 5944 (17260) vs. 1502 (2500): p=0.001. There were no differences in reperfusion strategy, infarct location, ejection fraction, in-hospital shock, cardiac arrest, need for inpatient CABG, or staged procedures. No between-group differences were evident for the primary composite of all-cause mortality and re-hospitalization 4 (12.1%) vs. 38 (11.3%): p=0.77.

CONCLUSIONS
In this single-center analysis of contemporarily treated STEMI patients, FN compared with non-FN patients have a significantly higher burden of atherosclerotic and non-atherosclerotic risk, and longer travel times to a PCI-capable center. No unadjusted differences in short-term outcomes are evident. Aimed at mitigating residual cardiovascular risk in FN patients, our results highlight the need for combined primary and secondary risk modification.
* Emergency Medicine Residency Program, University of Saskatchewan, Saskatoon, SK.
INTRODUCTION:
People who are trans and gender diverse (TGD) often report suboptimal quality of care when interacting with healthcare providers. Recent data from a Canadian survey of people who are TGD, found many have unmet health needs and avoid the emergency department out of fear of mistreatment. A growing body of literature is highlighting health care providers’ lack of knowledge and comfort with providing culturally safe care to individuals who are TGD.

METHODS:
A survey was distributed to Saskatchewan emergency physicians and residents to assess their comfort and knowledge of treating patients who are TGD. Participants were recruited via email. Survey data was collected using REDCap. Analyses included descriptive statistics.

RESULTS:
58 physicians completed the survey. 22.4% (13) reported previous training on transition-related healthcare. The majority of participants reported they had seen a patient who was TGD (93%, 54), with most feeling comfortable establishing rapport (88.9%, 48), addressing patient needs (90.7%, 49), and providing non-transition related medical care (96.6%, 56). Elevated hemoglobin and liver enzymes were correctly identified as possible lab abnormalities in patients on testosterone therapy by 36.2% (21) and 31% (18) respectively. Patients on feminizing therapy were correctly identified as being at risk for VTE, stroke and MI by 79.3% (46), 50% (29), and 29.3% (17) respectively. 69% of participants expressed interest in additional training.

CONCLUSIONS:
Emergency physicians in Saskatchewan report comfort in their interactions with patients who are TGD, but few have any formal training. Knowledge gaps surrounding lab changes and risk factors specific to hormone therapy exist. Interest in further training was high.
CAEP POSITION STATEMENT: PATIENT VIDEO AND AUDIO RECORDING IN THE EMERGENCY DEPARTMENT

Donauer A, Oyedokun S, Wahba M, Stempien J

* University of Saskatchewan, College of Medicine, Family Medicine - Emergency Medicine Resident
103 Hospital Drive Saskatoon, SK S7N 0W8

INTRODUCTION:
Smartphones are ubiquitous in today’s society, and the use of smartphones by patients in the Emergency Department (ED) is increasing <1-5>. The recording of clinical encounters by patients may be either with or without explicit consent obtained prior to recording. While studies have examined video recording in the ED for other reasons, there is little known about patients’ intents or clinicians’ attitudes toward this practice <3,6,7>. Current public policy on video recording in the ED varies across Canada according to provincial legislation <1-3>. The goal of this position statement is to provide a unifying set of national guidelines to guide healthcare policy and common ED practices nationwide.

METHODS:
With the help of a librarian, we performed a literature review using common mesh terms through Ovid Medline® and Embase®, which resulted in 700 studies. These were then further refined by AD for applicability to patients capturing recordings in the ED. Group consensus was required for acceptance of each recommendation based on available literature.

RESULTS:
We developed several recommendations regarding patients taking video or audio recordings in the ED. The recommendations discuss obtaining and documenting consent of all individuals prior to a recording, recording only in a private space, and restricting any public recordings where privacy, confidentiality, or protection of personal health information of patients cannot be maintained.

CONCLUSIONS:
Emergency physicians are going to experience patients attempting to take audio or video recordings in the ED. The recommendations outlined in this position statement represent national guidelines to provide patients with a consistent experience in ED’s across Canada, they will protect patient privacy and confidentiality, and they will also provide a reasonable amount of privacy to ED staff. These recommendations can be implemented across rural and urban practice settings throughout Canada with ideally only small regional adaptations required for implementation.
CAN PATIENTS PRESENTING TO THE ED WITH CHEST PAIN WHO HAVE INTERMEDIATE RISK HEART SCORES BE MANAGED AS OUTPATIENTS? A RETROSPECTIVE REVIEW OF TWO RAPID ACCESS CHEST PAIN CLINICS.

¹Department of Emergency Medicine, College of Medicine, University of Saskatchewan, 2646 Royal University Hospital, Saskatoon SK, Canada, S7N 0W8.

INTRODUCTION:
Chest pain is a common ED presentation. Despite thorough assessment, 2-5% of these patients are inappropriately discharged. The HEART score is a validated clinical decision tool with excellent sensitivity for identifying patients at risk for major adverse cardiac events (MACE). HEART score validation demonstrated intermediate risk patients should be admitted for further investigation, given MACE rates of 9.5-20.3%, which is resource intensive. Rapid Access Chest Pain Clinics (RACPCs) have mitigated this in low risk patients. A paucity of evidence exists for this approach in the intermediate risk group. We hypothesize RACPCs are a safe approach to managing intermediate risk patients presenting to the ED.

METHODS:
This retrospective observational study included all ED RACPC referrals between January 2018 and April 2020 in Saskatoon and Regina. HEART scores were recorded or imputed by investigators based on charted clinical data. The primary outcome measure was MACE, a composite measure of death, acute coronary syndrome (ACS), stroke, or revascularization at six weeks. Secondary outcomes were MACE type and rate of MACE prior to RACPC. Multivariate analysis examined for relationships between individual HEART score components and MACE.

RESULTS:
1989 RACPC referrals were included, of which, 817 were intermediate risk. 9.3% of intermediate risk patients experienced MACE at 6 weeks with coronary angiography being most common. 1.1% of MACE in intermediate risk patients occurred prior to the RACPC. No deaths occurred prior to RACPC follow up. The components of the HEART score most predictive of MACE were troponin (OR 11.0, 95% CI: 3.7-32.3) and history (OR 5.3, 95% CI: 2.4-11.8).

CONCLUSIONS:
This study demonstrates that RACPCs are likely a safe alternative to admission for intermediate risk chest pain patients. With angiography excluded, MACE rates were well below the American College of Emergency Physicians (ACEP) cited 2% threshold. Troponin and history were most predictive of MACE.
INCIDENCE OF IMPAIRED DRIVING COMPARED TO A NATIONAL COHORT

Davis PJ¹, Chan H, Herb C, Brubacher J
¹Department of Emergency Medicine, University of Saskatchewan, Saskatoon, SK

INTRODUCTION:
Driving while impaired increases the likelihood of being involved in a motor vehicle collision (MVC). We studied the prevalence of alcohol, cannabis, sedating medications, and other drugs in injured drivers in Saskatchewan compared to a national cohort.

METHODS:
We prospectively obtained excess clinical blood samples from consecutive injured drivers who attended the Royal University Hospital (Saskatoon) and the Regina General Hospital (Regina). Samples were analyzed using a chromatographic toxicological screen to detect alcohol, cannabinoids, cocaine, amphetamines, opiates, and other sedating agents. Health records were reviewed to extract details of the MVC, demographic data, as well as associated injuries and outcomes using a standardized data collection tool. We used descriptive statistics to compare the prevalence of impaired driving to a national cohort.

RESULTS:
In all, we identified 368 injured drivers in Saskatchewan and 4976 nationally. Of these, 13.9% of injured drivers in Saskatchewan had a blood alcohol concentration > 0.08%, compared to 11.9% nationally (p=0.26). Injured drivers in Saskatchewan were more likely to have tetrahydrocannabinol (THC) concentrations > 5 ng/mL (6.5% vs. 3.5%; p=0.003), and to have any impairing substance in their system (58.7% vs. 50.8; p=0.003). In subgroup analysis, injured drivers over 30 in Saskatchewan were significantly more likely to have Cannabinoids or THC in their system (31.5% vs. 24.1%; p=0.01).

CONCLUSION:
There is a high prevalence of impairing substances found in the bloodstream of injured drivers. Health care providers should consider screening injured drivers for substance use and abuse.
ASSessment of a One-Time Educational Video on Emergency Department Physician Comfort and Management of Patients at High Risk for Human Trafficking.

Albrecht, B. Stempien, J. Martin, L.
University of Saskatchewan, 109-212 10th St E, Saskatoon, SK, S7N 2T6. University of Saskatchewan

Introduction:
Human trafficking (HT) has been increasingly recognized in recent years. Risk factors for HT include: social determinants of health, marginalization, violence/trauma, and globalization. In North America, differences in SES and poverty levels lead individuals to be trafficked into the sex worker industry, and trafficking types are similar to those in developing countries.

87% of HT victims seek health care; 63% seek care in an emergency department (ED). Despite victims seeking care, they are unlikely to disclose their situation, reported reasons include; lack of self-identification as a victim, threats of punishment from the trafficker, and hopelessness/shame. In addition, many front line workers report feeling unequipped to identify and further assist trafficked patients.

Methods:
A survey assessing physician demographics and familiarity with HT was distributed. A pre-recorded presentation was then used as an educational intervention, followed by a post-intervention survey. This survey assessed changes in physician familiarity with HT. Responses will be measured as correct/incorrect and assessed as a percentage change between between the pre- and post-intervention surveys. Significance will be determined using a t-test. Physician opinions will be represented on a numeric Likert scale, and will be measured as mean numeric change and 95% confidence intervals. Other comparisons will include number of PGY years (for current residents), number years in practice, gender, self-identification as Metis/Aboriginal/First Nations, place of birth, medical school attended, and previously provided education on HT. These comparisons will be analyzed using ANOVA calculations and/or correlational analysis.

Results/Conclusions:
Results and conclusions are pending. To be updated pre-event.
CRACKCAST: A MODEL FOR BEST PRACTICES IN FREE OPEN ACCESS MEDICAL EDUCATION
Radomske D, Scheirer O, Carey R, Hill K, Thoma B
University of Saskatchewan FRCPC Emergency Medicine Program, 1415 1st Avenue N, Saskatoon SK

INTRODUCTION:
The use of open educational resources such as podcasts to educate medical students and residents is commonplace and they are increasingly being integrated into formal curricula. However, these resources are rarely organized in keeping with best practices for learning and seldom follow a formal curriculum. We sought to remedy this by creating a suite of open educational resources that follow a curriculum and align with best practices.

METHODS:
CRACKCast is hosted on the CanadiEM website (https://canadiem.org) and consists of a comprehensive curriculum that tracks the chapters of the Rosen’s Emergency Medicine textbook. It employs multiple modalities (podcasts, blog posts, and online flashcard decks) to support evidence-based learning practices such as spaced repetition, interleaving, and test-enhanced learning.

RESULTS:
The full CRACKcast curriculum consists of 211 podcast episodes and blog posts that correspond with the chapters of Rosen’s Emergency Medicine. Flashcards have been created for 85% of the episodes. The resources follow a question-and-answer format to facilitate test-enhanced learning and are designed to be used consecutively (e.g. read the chapter, listen to the podcast, review the show notes, and quiz with the flashcards) to support spaced repetition and interleaving.

CONCLUSIONS:
Podcast episodes have been downloaded by listeners from 119 countries more than 1,186,000 times since its creation. The flashcards have been downloaded over 6,486 times. Additional research is required to determine CRACKCast’s efficacy as an educational tool, but we believe our innovation demonstrates the integration of best practices in this novel learning modality and has the potential to inform the development of similar curricula in other fields.

[Poster appended on following page]
CRACKCast: a model for best practices in free open access medical education
Radomske D., Scheirer O., Carey R., Hill J., Thoma B.

INTRODUCTION
The use of open educational resources such as podcasts to educate medical students and residents is common and they are increasingly being integrated into formal curricula. However, these resources are rarely organized in keeping with best practices for learning and seldom follow a formal curriculum. We sought to create a suite of open educational resources that follow a curriculum and align with best practices.

DESCRIPTION OF INNOVATION
Our full innovation incorporates five parts:
1. The reading of the Rosen's Emergency Medicine textbook
2. Listening to a podcast focused on the topics of individual chapters in Rosen's Emergency Medicine
3. Review of published shownotes
4. Participation in textbook rounds within local residency programs
5. Utilization of flashcards to consolidate knowledge.

PRINCIPLES OF EDUCATION THEORY
1. Spaced Repetition: the process of reinforcing conceptual learning and retention by providing regular introduction and review of sentinel concepts
2. Interleaved Learning: studying several topics during one session to better engage learners
3. Test-enhanced Learning: using tests to enhance memory of topics through flashcards, multiple choice examinations, and practice oral examinations

INTENDED USE AND OUTCOMES OF THE CRACKCast CURRICULUM
- Reading Rosen’s Emergency Medicine
  Incorporates interleaved learning, with review of broad topic
- Review of CRACKCast chapter flashcards
  Reinforces concepts with spaced repetition and test-enhanced learning
- Participation during textbook rounds
  Incorporation of existing curricula allows our tools to be complementary and beneficial to learners
- Active listening to CRACKCast podcast
  Allows for consolidation of key concepts from chapter and begins process of spaced repetition
- Review of published CRACKCast shownotes
  Intentionally done before textbook rounds to again facilitate spaced repetition and optimize test-enhanced learning

UPTAKE AND UTILIZATION
We have an impressive international following, with clinicians and learners downloading our content on every continent except for Antarctica.

1.6 Million Podcast Downloads
6486 Flashcard Downloads
>1000 page views per post

CONTACT
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Shownotes: Podcast: Flashcards:
BUILDING VALIDITY EVIDENCE FOR THE QUAL (QUALITY ASSESSMENT OF LEARNING) SCORE AS A MEASURE OF THE QUALITY OF NARRATIVE COMMENTS IN COMPETENCY BASED MEDICAL EDUCATION

Department of Emergency Medicine, University of Saskatchewan
Saskatoon, SK, Canada

INTRODUCTION:
Competency based medical education (CBME) relies heavily on narrative comments from entrustable professional activities (EPA) for programmatic assessment, but the quality of these comments is usually left unassessed. There is validity evidence supporting the QuAL (Quality of Assessment for Learning) score for rating narrative comments within workplace-based assessments, but its utility for rating EPAs has not been evaluated. We sought to establish validity evidence for the QuAL score in the context of EPAs by investigating the perspectives of residents, academic advisors, and competence committee members.

METHODS:
The authors randomly selected 52 de-identified narrative comments from two emergency medicine EPA databases using purposeful sampling. Six collaborators (two residents, two academic advisors, and two competence committee members) were recruited from each of four EM Residency Programs (Saskatchewan, McMaster, Ottawa, and Calgary) to rate these comments with a utility score and the QuAL score. Correlation between utility and QuAL score were calculated using Pearson’s correlation coefficient. Sources of variance and reliability were calculated using a generalizability study.

RESULTS:
All collaborators (n=24) completed the full study. The QuAL score had a high positive correlation with the utility score amongst the residents (r=0.80) and academic advisors (r=0.75) and a moderately high correlation amongst competence committee members (r=0.68). The generalizability study revealed the major source of variance was the narrative comment. The QuAL score inter-rater reliability ranged from 0.72-0.94 among the cohorts of raters.

CONCLUSIONS:
The QuAL score is a simple tool that demonstrates acceptable reliability and correlates well with utility for narrative comments in EPA assessments for residents, academic advisors, and competence committee members. The QuAL score may serve as an outcome measure for program evaluation and as a resource for faculty development.