UNIVERSITY OF SASKATCHEWAN

2016 EMERGENCY MEDICINE RESEARCH DAY

AGENDA & ABSTRACTS

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EMERGENCY MEDICAL SERVICES

Impact of pit-crew CPR on survival following out-of-hospital cardiac arrest in Saskatoon

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INTRODUCTION: Since 1980, survival rates after out-of-hospital cardiac arrest (OHCA) have averaged only 7.6% despite new technologies, medications, and automated external defibrillators (AEDs). Pit-crew CPR focuses on minimizing interruptions in compressions and reducing the peri-shock pause. It has shown improvements in survival in other jurisdictions. We aim to identify if pit-crew CPR increases survival rates after an OHCA in Saskatoon.

METHODS: Our study is a retrospective pre and post cohort chart analysis. The primary outcome being measured is survival to hospital discharge (STD). Secondary outcomes include survival to admission (STA) and return of spontaneous circulation (ROSC). Our pre cohort included all OHCA from a presumed cardiac cause from January 1st, 2011 until December 31st, 2014. Data collection on the post treatment cohort will continue until the primary outcome can be compared between the two cohorts using chi-squared analysis. Secondary outcomes and sub group analysis will be examined in collaboration with the Clinical Support Research Unit (CSRU).

RESULTS: 494 of 638 reported OHCAs met inclusion criteria for the pre treatment cohort. Total ROSC, STA, and STD were 42.8%, 31.5%, and 10.2% respectively. We have data if the OHCA was witnessed or not for 239. For the 140 witnessed OHCAs, STA and STD were 35.4% and 14.3%. Preliminary post treatment cohort data for 2015 saw 94 of 124 OHCAs included for which total ROSC, STA, and STD were 44.6%, 34%, and 16% respectively. For the 53 witnessed OHCAs STA and STD was 46.7% and 22.6%.

CONCLUSIONS: The pre treatment cohort STD was above the national average. Preliminary post pit-crew data demonstrated an increase in STD from witnessed OHCA of presumed cardiac cause. If this increase is maintained until the end of the study with adequate power, a yearly average of 53 witnessed OHCAs would translate into 4 more lives saved each year.

Mass Casualty Incident Training for Rural Canadian Municipalities: A Mobile Education Unit Initiative

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INTRODUCTION: The STARS® Mobile Education Unit (MEU) is comprised of a high fidelity simulation suite that mimics a hospital emergency room, installed in a specially equipped motorhome (SEM) that can wirelessly operate a high fidelity human mannequin. The MEU provides an excellent opportunity to combine continuing medical education for resuscitation and MCI management. At present, no formal MCI education process exists in Saskatchewan.

METHODS: The Saskatchewan STARS® MEU delivers a phased MCI education initiative to rural and regional centers within the province. The educational initiative is sub-divided into three stages: 1. pre-exercise knowledge translation using a flipped classroom approach, 2. on-site tabletop exercise (TTX) and, 3. high-fidelity simulation session with MCI principles reviewed. During stage 2, participants complete a pre and post-exercise survey. The survey evaluates the educational component, the tabletop exercise component and the perceived pre and post tabletop exercise competencies for the management of MCI.

RESULTS: In the pilot project, two regional sites completed the tabletop exercise. The pre-exercise survey evaluated perceived MCI and disaster preparedness for the region. Only 8% and 25% of participants at each site respectively, reported that their disaster plan had been trialed in tabletop, full exercise or real activation within the past three years. Participants strongly agreed that the tabletop exercise was a valuable experience (86% and 88% respectively). More robust data will become available as the initiative transitions out of the pilot stage to formal operations.

CONCLUSION: A formal MCI training program implemented through the STARS® MEU for rural Saskatchewan municipalities enables participants and their organizations to both review and enhance their current emergency management plans. This initiative will aim to establish a foundation for future collaboration at the provincial and national level for rural MCI training and preparedness.

First Responder Role and AED Application in Out of Hospital Cardiac Arrest and Survival to Hospital Discharge in the Regina Qu'Appelle Health Region

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INTRODUCTION: Out of hospital cardiac arrests (OHCA) have poor survival. One strategy to improve outcomes is the dispatch of first responders. The goal is to shorten the interval to cardio-pulmonary resuscitation (CPR) and defibrillation. In the Regina Qu'Appelle Health Region (RQHR) fire personnel and emergency medical services (EMS) are dispatched to cardiac arrests. Previous studies have found inconsistent mortality benefit from this intervention.

METHODS: A chart review of patients with OHCA and attempted resuscitation in the RQHR from January 1, 2013 to December 31, 2014 was conducted. Response time, role of initial responder, time to defibrillation, role of defibrillator applicator, survival to hospital admission and survival to hospital discharge were determined for each case. Dispatch calls, EMS documentation and Sunrise Clinical Manager documents were used. The primary outcome of interest was survival to discharge and if this was affected by the first responder's role.

RESULTS: Review was completed of 262 cases. EMS were the first responder in 191 (72.9%), fire in 37 (14.1%), rural first responder in 22 (8.4%), and police in 12 (4.6%). Police were excluded from final analysis due to small numbers. Survival to admission was similar in EMS and fire groups 38.2% to 37.8% respectively and markedly lower in the rural first responder group at 4.5%. The rate of survival to discharge was 15.2% for EMS, 10.8% for fire and 0% for rural first responders.

CONCLUSION: Analysis was limited by the small number of survivors. However, there was no improvement in mortality for cases in which fire responded first and a trend towards lower survival to discharge which was non-significant.

QUALITY IMPROVEMENT

Characterizing how Institutionalized and Community-Dwelling Elderly Patients use Emergency Department Services in Regina, Saskatchewan

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INTRODUCTION: In light of recent local initiatives aimed at improving emergency department (ED) patient flow, we sought to characterize how patients aged 65 and older who reside in long term care (LTC) facilities utilize the services of the EDs in Regina, Saskatchewan as compared to an age-matched comparison of community dwelling (CD) individuals.

METHODS: A retrospective chart review was performed with a convenience sample of the first 50 patients who presented to the each ED at both hospitals in Regina starting January 1, 2012. Two separate patient populations were included: those who reside in the health region run LTC facilities and those who are community swelling. We abstracted data from a variety of different clinical, demographic and administrative parameters.

RESULTS: The charts of 100 patients and 99 patients for the LTC and CD populations respectively. The CTAS distribution for LTC patients was: CTAS 1-3 57% and CTAS 4-5 43%. The CD population was: CTAS 1-3 66% and CTAS 4-5 33%. From the LTC population, we found that 50% of patients were admitted, compared to 43% of the CD population. Furthermore, we also noted that 75% of LTC patients and 41% of the CD population needed EMS services. Finally, there were 27 repeat visits in the LTC visits and 6 in the CD population.

CONCLUSION: Our findings highlighted two major differences in these two populations. These were that the LTC population tends to use more EMS services and had more repeat visits to the ED than the CD population. It is our intent that the findings of this study will help guide future quality improvement initiatives.

Factors Related to Prolonged Length of Stay in Patients that are Discharged from an Urban Tertiary Emergency Department

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INTRODUCTION: Previous research has focused on improving Emergency Department (ED) system efficiency, through analysis of factors affecting patient Length of Stay (LOS). However, groups of patient visits, particularly discharged patient visits with prolonged (greater than 8 hours) LOS, have not been focused on.

METHODS: A retrospective review is ongoing at two urban tertiary care teaching hospitals in Regina, SK, Canada. Records of 140 discharged patient visits in the 90th percentile of visit LOS between February 1 and 29, 2016 were reviewed. Key data included date and time registered and discharged, patient characteristics, Canadian Emergency Department Triage and Acuity Scale (CTAS) scores, times of ER personnel assessments, and times of labs, investigations and consultations. Data was taken from an electronic patient database and accompanying online visit documentation. 21 (15%) of the 140 patient records were excluded due to documentation errors. Data was analyzed with descriptive statistics.

RESULTS: Time to Emergency Physician Assessment (PIA) was found to be longer than 3 hours in 54% of patient visits. PIA was determined to be statistically significant compared to Time of Designation to an Emergency Room ($p<0.001$, CI 1.2443 to 2.3112). Of visits involving CT and Ultrasound Scans, 56% and 84% respectively waited longer than 8 hours for these investigations. 76% of visits with properly documented consultations waited 8 hours or more to see the consultant.

CONCLUSIONS: Preventing prolonged LOS will involve timeliness of Emergency Physicians and Consultants as well as accessibility to overnight Ultrasound and CT scans. Further analysis involving daily hospital traffic and social factors will be completed in upcoming months. Standardizing system documentation, including Time Seen by Consultant, is recommended.

Emergency Department Ultrasound Image Concordance and Appropriateness in the Saskatoon Health Region: A Quality Assurance Study.

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INTRODUCTION: Emergency medicine (EM) physicians frequently use emergency department ultrasound (EDUS) in the diagnosis and management of their patients. Canadian emergency medicine associations strongly advocate for EDUS quality assurance programs, which include the evaluation of the accuracy of image interpretation as well as the appropriateness of examinations in line with evidence-based care algorithms. Our primary objective was to determine the rate of concordance of EDUS with consultative imaging. Our secondary objective was to determine if EDUS is being integrated appropriately into patient care.

METHODS: An ethics exemption was granted by the University of Saskatchewan Research Ethics Board. A retrospective chart audit was completed to identify patients receiving EDUS in three Saskatoon emergency departments. EDUS data was collected by EM residents from May 1st 2015 to March 1st 2016. Concordance was assessed by comparing EDUS documentation to available consultative imaging reports. Seven *a priori* evidence-based treatment algorithms were designed and reviewed by EDUS physician experts to objectively determine the appropriateness of EDUS patient care integration. Data was analyzed with IBM SPSS (v.23)

RESULTS: We identified 333 patients that received EDUS for a total of 626 completed scans. EDUS scans were concordant with consultative imaging 94% (144/153) of the time. Of the 9 discordant scans, 78% were renal, gallbladder and pericardium scans. 33% of these discordant scans were false negatives (2 pericardium and 1 gallbladder). 97% (527/542) of the EDUS scans were appropriately integrated into patient care.

CONCLUSION: EDUS imaging was highly concordant when compared with consultative imaging, and is being appropriately incorporated into patient treatment. Consultative imaging as a way to ensure quality assurance in EDUS may be flawed due to temporal changes following EDUS and lack of access to imaging reports. Future quality assurance should focus on beside image capture as a more robust comparison to documented EDUS findings.

Identifying patients who may benefit from extracorporeal membrane oxygenation (ECMO) after cardiac arrest in the urban emergency departments of Saskatchewan

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INTRODUCTION: Emergency physician-initiated Extracorporeal Membrane Oxygenation (ECMO/ECPR/ECLS) is gaining critical mass as a successful rescue strategy for patients requiring resuscitation. Wang et al. (2014), Bellezzo et al. (2012) and others have demonstrated promising results of survival to discharge with good neurological function in patients who were resistant to existing treatment protocols after out-of-hospital cardiac arrest. As Saskatchewan does not yet utilize ECMO for cardiac arrest, the objective of this study was to examine the number of adult cardiac arrest patients in the urban emergency departments (EDs) of Saskatchewan who may benefit from the use of ECMO.

METHODS: Using a retrospective review, we identified 401 patients who died after presenting with cardiac arrest between January 1st, 2013 and December 31st, 2014. Of the original 401, 136 were female and 264 were male, with a mean age of 60.1±20.2 years. The charts of 22 (5.5%) trauma patients were excluded because the suitability of ECMO in these patients is uncertain.

RESULTS: For the 379 non-trauma patients, the mean resuscitation length was 41.6±32.8 minutes (median=42 minutes) and 125 of these patients received prehospital mechanical CPR. We applied Bellezzo et al.'s (2012) inclusion and exclusion criteria to identify prospective candidates for ECMO. In total, 53 patients (14.0%) with a mean age of 57.1±13.4 years old, represent suitable candidates for ECMO. 260 (68.6%) were deemed unsuitable either because they failed the inclusion criteria or met explicit exclusion criteria. The remainder (66 [17.4%]) were unsuitable because of age.

CONCLUSION: With 1 in 7 patients potentially representing suitable candidates for ECMO, this is a technique that warrants consideration for implementation in the EDs of Saskatchewan.

EDUCATION

Emergency Medicine Clerkship Re-Design

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INTRODUCTION: Emergency Medicine (EM) is a core rotation of medical school in Canada. In the summer of 2016, the University of Saskatchewan (U of S) will increase the duration of their EM rotation to a 4-week rotation. This has significant implications for curriculum delivery and assessment of trainees.

METHODS: Kern's model outlines six stages for curriculum development: 1. Problem Identification and Needs Assessment 2. Needs assessment for targeted learners 3. Goals and Objectives 4. Educational Strategies 5. Implementation 6. Evaluation and Feedback. The research team undertook the following actions: 1 – Discussion with all stakeholders on possible curriculum resources. 2 – Review of trainee evaluations from previous EM rotations. 3 – Focus group with physicians, residents, and students who had already completed the ED rotation. 4 – Development of assessment and teaching strategies based on modified goals and objectives. 5&6 – to be completed.

RESULTS: The following changes were implemented: 1 – A novel nursing triage shift. Direct observation and an Exit examination are now required for the new rotation by the Liaison Committee on Medical Education. 2 – Greater focus on trainee orientation and learning resources. 3 –Point of Care Ultrasound will be integrated into several objectives. Skin & Soft Tissue infections was added as a learning objective and obtaining consent was omitted. 4 – Assessment: End of rotation exam mapped to goals and objectives, modified Daily Encounter Card, and incorporation of Direct Observation tools. Teaching: ,A modified orientation package, links to learning resources, and teaching files on interpretive skills. 5&6 –to be completed..

CONCLUSION: Kern's model provided a robust framework for a major curriculum change in EM Clerkship at the UofS. Evaluations from trainees and faculty will determine if the new curriculum has been successful.

Individual gestalt is insufficient for the evaluation of quality in medical education blogs: A METRIQ Study

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INTRODUCTION: Medical trainees and physicians are increasingly accessing information via open educational resources such as blogs. Attending physician gestalt is the de facto gold standard for evaluation of these resources, however, little information has been published on its reliability and how it differs from trainee gestalt.

METHODS: We identified 60 English-language websites focused on emergency medicine (EM) topics which posted clinically-oriented blog posts between January 1 and February 24, 2016. 10 websites were selected using a random number generator. The most recent two clinical blog posts from each site were evaluated for quality using gestalt by medical students, EM residents, and EM attendings. Pearson's correlations were calculated *between* groups. Single and average measure intra-class correlation coefficients (ICC) were calculated *within* groups.

RESULTS: 95 medical students, 48 residents, and 58 attendings rated all 20 blog posts using gestalt. Single measure ICCs were poor within all three groups (0.158-0.224). Average measure ICCs were significantly more reliable, especially for attendings (0.852). There was a strong correlation between the gestalt ratings of medical students and attendings (r=0.971) and of residents and attendings (r=0.975).

CONCLUSION: The gestalt blog post quality ratings of groups of medical students, residents, and attendings correlate, but individual ratings are unreliable. Structured quality evaluation tools are likely to improve reliability. With sufficient raters, mean attending gestalt is a reasonable reference standard for the validation of such tools.

WELLNESS

Wellness, sleep, and exercise in emergency medicine residents: an observational study

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INTRODUCTION: Emergency physicians must maintain their health and wellness to have long and productive careers. Both sleep and exercise have been found to relate to wellness in other populations, and are particularly challenging to maintain for residents and physicians on a shift-work schedule. Initiatives to improve physician wellness are gaining momentum, but methods to quantify their effects are lacking. We are unaware of any studies that have objectively quantified the exercise and sleep habits of Emergency Medicine (EM) residents. Relatively inexpensive, commercially available devices such as the "Fitbit" can accurately quantify sleep and exercise quantity and quality. If these metrics correlate with resident wellness, then further study of initiatives aimed at improving sleep and exercise would be warranted.

METHODS: Thirty EM residents from the University of Alberta and the University of Saskatchewan will wear a Fitbit during a four-week EM rotation. The Fitbit will provide data on sleep quantity (daily minutes of sleep) and quality (daily number of awakenings), as well as exercise quantity (daily mean calories burned) and quality (daily minutes performing activity of 3-6 and >6 metabolic equivalents). At the end of this period participants will complete the Perceived Wellness Survey (PWS), which provides information on six aspects of wellness (psychological, emotional, social, physical, spiritual, and intellectual). Descriptive statistics for each metric will be reported and presented graphically. Participant PWS scores will be correlated with the recorded Fitbit markers using a Spearman rank correlation to assess their relationship with wellness.

RESULTS: Study in progress.

CONCLUSIONS: Study in progress.

A ‘Pawsitive’ Addition to the ER Patient Experience. A Pilot Evaluation of the St. John Ambulance Therapy Dog Program in a Canadian Hospital

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INTRODUCTION: Animal-assisted interventions (AAI) have been applied in numerous clinical settings to help reduce pain, stress, and anxiety. This qualitative study sets out to evaluate the St. John Ambulance Therapy Dog program in the emergency department of the Royal University Hospital in Saskatoon, Saskatchewan.

METHODS: An observer identified patients interested in visiting with a Therapy Dog during their emergency department stay. Prior to the visit, verbal consent was obtained. Study participants were asked to indicate on a pictographic scale their physical and mental states before and after the visit. The Therapy Dog team, consisting of a dog and handler, visited the patient for 5-10 minutes. During this time an observer took notes, Participants were asked to answer questions regarding their overall experience with the Therapy Dog team.

RESULTS: Pre- and post AAI pictographic scale results showed an average improvement of 1.3 faces. Before AAI the most commonly reported emotions were frustrated, pain, discomfort, anxious, sad, overwhelmed, suicidal, and upset. After AAI the most commonly reported emotions were happy, relaxed, content, and calm. Observers noted a number of patient and family changes during AAI, including changes in tone of voice and body language, smiles, and sharing of pet stories.

CONCLUSION: All feedback to date has been overwhelmingly positive, both as a quantitative measure of participant feelings before and after visiting with the therapy dog and based on the comments and observed changes during the intervention. Further data collection will improve our sample size and give a better indication of the significance of the impact.

The Relationship between Personality Traits and Post-Traumatic Stress in Helicopter Emergency Medical Services Personnel

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INTRODUCTION: Helicopter emergency medical service (HEMS) employees must cope with significant duty-related stressors including traumatic incident exposures. Little is known about the personality traits that may be associated with post-traumatic stress disorder (PTSD) in this high-risk population. The current study was designed to investigate whether PTSD symptoms can be predicted by personality traits in HEMS employees.

METHODS: A cross-sectional, online survey-based design was used with personnel from STARS Air Ambulance services in Saskatchewan, Manitoba, and Alberta. In total, 100 participants (age=42.48±7.94, 74% male) completed the survey. The sample included physicians (*n*= 20), nurses (*n*=30), paramedics (*n*=27), and pilots (*n*=23). The HEXACO Personality Inventory was used to assess the six domains of personality: Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience. PTSD symptoms were assessed using the PTSD Checklist (PCL-5). Multiple regression analysis was conducted with the HEXACO dimensions as predictors and the PCL-5 score as the outcome variable.

RESULTS: Descriptive statistics supported the use of all variables to allow for parametric statistics. The multiple regression analysis indicated that the model significantly predicted the outcome variable, $F(6,88)=3.01$, $p<.05$, with 17% of the variance was explained. There were no indications of problems with multicolinearity (VIF < 1.3). The only significant predictor of PTSD symptoms was the personality dimension Extraversion, $\beta=-.23$, $p<.05$; however, the Emotionality dimension approached statistical significance, $\beta=.20$, $p=.06$.

CONCLUSION: The results indicate a relatively small portion of variance in self-reported post-traumatic stress symptoms was explained by personality traits. Participants reporting lower levels of extraversion and/or higher levels of emotionality tended to report more post-traumatic stress. Limitations and future research directions are discussed.

CLINICAL MEDICINE

Point of Care Ultrasound in Congestive Heart Failure

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INTRODUCTION: Assessment of treatment response for acute heart failure is currently guided by radiographic and laboratory investigations which are costly, of modest accuracy, and can involve radiation exposure. Ultrasound is increasingly recognized as a low cost and high fidelity tool for the diagnosis of pulmonary edema, however little evidence exists regarding serial monitoring. Our study aims to characterize the evolution of ultrasonographic artifact (B-lines) on thoracic point of care ultrasound (POCUS) in patients with congestive heart failure (CHF) as they are treated in hospital.

METHODS: An educational program consisting of one didactic lecture followed by several hands-on teaching sessions was designed and presented to residents with the intent of enabling them to identify B-lines in their CHF patients. Residents recorded routine thoracic ultrasound scan results in CHF patients' charts alongside their other physical, radiologic, and laboratory findings. Once treatment was complete, patients' charts were analyzed retrospectively and POCUS findings compared to other markers of CHF severity and treatment response. Images from each scan were recorded at the bedside and reviewed by expert ultrasonographers for validation purposes.

RESULTS: Twelve patients received serial thoracic POCUS scans (mean = 5.8 scans). The primary outcome of CHF resolution as evidenced by liberation from supplemental oxygen was strongly associated with resolution of the B-line profile. The secondary outcomes of subjective dyspnea and radiographic resolution also demonstrated good correlation. An inter-rater agreement analysis done for twenty randomly selected POCUS scans between novice and expert ultrasonographers demonstrated complete concordance with B-line identification ($k = 1.0$)

CONCLUSION: Ultrasonographic findings correlated well with the resolution of CHF exacerbations, demonstrating great promise in the application of this low risk, noninvasive technology for serial inpatient monitoring. Additionally, agreement between novice and expert clinicians regarding image interpretation was very good.

Impact of Casting of Possible Scaphoid Fractures on Quality of Life and Productivity

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INTRODUCTION: The widely accepted standard of care in the management of possible scaphoid fractures has been to apply a thumb spica splint in the emergency department and recommend that the patient follows up with a physician in seven to ten days for repeat X-rays and to reassess the need for ongoing casting. An alternative to casting may be to perform an early MRI, which has a very high sensitivity for detecting acute scaphoid fractures. This may allow patients to avoid unnecessary casting. Studies have been done comparing the cost effectiveness of initial MRI over casting and follow up. However, little research has been done evaluating the indirect costs of casting, such as loss of productivity or decreased quality of life.

METHODS: Patients were recruited who received thumb spica splints in the emergency departments at the Regina General Hospital and the Pasqua Hospital. They completed a telephone questionnaire several weeks after their ER visit to evaluate the ways in which having a cast or splint affected their productivity and if their follow up imaging did reveal a scaphoid fracture.

RESULTS: 3 patients participated in a telephone survey regarding their experiences. All patients identified at least some impact of casting on their quality of life, ranging from 3 to 5 on a 10 point scale (with zero being no impact and ten being significant impact).

CONCLUSION: Indirect costs of casting possible scaphoid fractures in the emergency department must be considered when evaluating the overall cost of traditional casting and follow up. Other methods of imaging, such as MRI, may be considered to prevent some of the loss of productivity that is associated with casting of possible scaphoid fractures.

Equity of Care Between First Nations and Non-First Nations Patients in Saskatoon Emergency Departments

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INTRODUCTION: Studies have shown that First Nations patients have poorer health outcomes than non-First Nations patients. This has raised concerns that they receive unequal treatment from the health care system in general and the Emergency Department (ED) in particular. We sought to determine if such differences exist so improvements could be made.

METHODS: We performed a chart review, comparing care received by status First Nations and non-First Nations patients presenting to two hospital ED's in Saskatoon, Saskatchewan with the chief complaint of abdominal pain and a Canadian Triage and Acuity Scale score of three. A total of 200 charts were reviewed. Data extracted included time to doctor, time to analgesia, length of stay (LOS), specialist referral, blood work, imaging, bounce backs, reassessment, physical and history exam, and final disposition. Group medians and proportions were compared using Mann-Whitney U and Chi-square testing respectively. Equivalence testing (two one-sided testing) comparing time intervals of interest was also undertaken. To evaluate confounding factors, multiple linear and logistic regression was utilized.

RESULTS: No statistically significant differences in presentation characteristics were observed, although First Nations subjects did show a marginally significant tendency towards younger age ($p=0.07$). Care parameters were similar, although marginally significant differences were again observed in First Nations versus non-First Nations subjects in imaging (46.5% versus 59.6%, $p=0.06$) and consultation (13.9% versus 23.2%, $p=0.09$); the former resolved on adjustment for age and weekend presentation. Time to physician, time to analgesia, and LOS was equivalent between the groups within 10 minutes, 10 minutes, and 30 minutes margins respectively.

CONCLUSION: First Nations patients presenting with moderate abdominal pain were generally not found to differ substantially in the time to care, within the allotted time variables, compared to non-First Nations patients. However, a possibly decreased tendency to specialist referral in the non-First Nations patients may warrant further evaluation.

Management of Simple Cutaneous Abscesses in the Emergency Department

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INTRODUCTION: Simple cutaneous abscesses (SCA) are a common presentation to the emergency department. The Infectious Disease Society of America (IDSA) and Choosing Wisely guidelines state the addition of antibiotics after incision and drainage (I&D) is unnecessary unless there is extensive cellulitis, systemic infection, or immunocompromised. Additional potential indications include if the patient has multiple abscesses or with failure of I&D alone. This study aimed to assess what current practices are in Regina and whether a directed discussion with the emergency physicians about existing guidelines could reduce unnecessary antibiotic use.

METHODS: Ethics provided exemption for a retrospective chart review at the Regina General and Pasqua Hospitals. The initial time period was set as January 2015 – August 2015. In September 2015 a department meeting was held with the majority of emergency physicians that reviewed appropriate treatment of SCA's. Reminder emails about these recommendations were then emailed out to the entire group. A second time period from September 2015-December 2015 was then reviewed.

RESULTS: 151 charts met inclusion criteria. 91 were in the initial period, with 79.1% of these patients receiving antibiotics as part of their treatment, and no appropriate reason for giving antibiotics found in 38.5%. 60 charts were reviewed from the secondary time period, of which 73.3% were given antibiotics, and no appropriate reason was found in 21.7%. Of the reasons provided for giving antibiotics over 75% were due to associated cellulitis.

CONCLUSION: Overall antibiotic use for treatment of SCA decreased by 5.8% after a review of best practice was discussed with emergency physicians in Regina. Further improvement could be seen by better defining what cellulitis is significant, use of ultrasound to characterize SCA's, and by reassessing patients over time to determine need for antibiotics.