

# *Lifelong Learning*



UNIVERSITY OF SASKATCHEWAN

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## *Medical Education Research and Scholarship Day 2019*

### *Abstracts*

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# *Lifelong Learning*



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## *Oral Presentation Abstracts*

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TEACHING IN THE CLASSROOM  
WELLNESS  
OFFICE PRACTICE  
TRIPLE C FIELD NOTES  
RESEARCH  
SCHOLARSHIP  
ASSESSMENT

## **A comprehensive public health approach to medical student mental health**

Melissa Anderson, College of Medicine-Community Health & Epidemiology

Co-Author(s): Galilee Thompson, Resident, UBC; Adam Stacey, Faculty, U of S, Kylie Riou, Resident, USask; Jessica Campoli, PhD candidate, USask; Niels Koenkhe, Faculty, USask; Marcel D'Eon, USask.

**Purpose:** Poor mental health among medical students has been documented for decades. Despite starting medical school with emotional health on par with the general population, medical students' stress levels rise and their mental health falls remaining low throughout training. The response from medical schools has not been adequate (as evidenced by the persistence of the problem). We need a comprehensive public health approach that addresses the sources of stress and related health concerns in medical students.

**Methods:** Building on recent reviews we conducted an expanded review of the literature to incorporate insights from occupational medicine, public health, and other disciplines.

**Results:** Poor medical student mental health appears even more serious when considering the unwell comparison group – a general population or age related peers both with poor and/or declining mental health. One of the main drivers of this situation are organizational. From our expanded literature review explored recommendations for primary, secondary, and tertiary prevention initiatives. We note in particular the importance of students self-care especially sleep and physical activity. Tertiary: availability of care, opportunity to access care by reducing excessive curricular demands, reduced stigma. Secondary: optional self-assessments; more training in mental health detection for students, faculty, and staff. Primary: identify and reduce the sources of stress and/or equip medical students with more resources.

**Conclusion:** To address poor mental health among medical students, comprehensive, systems-level change is needed. We provided a list of recommendations at all levels of prevention, with a focus on reducing risk factors at the primary level.

## **A Standardized Model to Trend the Quality of Evidence at Medical Annual General Meetings: A 5-Year Retrospective Study**

Erik Yip-Liang, College of Medicine-UGME

Co-Author(s): a. Nasim Zamir, University of Saskatchewan, Department of Internal Medicine, Resident Physician b. Arian Gholami, Dalhousie University, Department of Family Medicine, Resident Physician c. Yasmin Jajarmi, McMaster University, Department of Family Medicine, Resident Physician d. Nicholas L. Jackson Chornenki, McMaster University, Undergraduate Medical Education, Medical Student e. Erik Yip-Liang, University of Saskatchewan, Undergraduate Medical Education, Medical Student f. Ameen Patel, McMaster University, Department of Medicine, Professor of Medicine, Vice-Chair Education, William J. Walsh Chair in Medical Education g. Kelly L. Dore, McMaster University, Departments of Medicine and Obstetrics and Gynecology, Associate Professor, Director MSc Health Science Education

**Background:** Healthcare professionals rely on annual general meetings (AGMs) to obtain up-to-date information and practice guidelines relevant to their specialty. Most of such information at meetings is presented through abstract sessions. However, the quality of the evidence presented during such abstract sessions is unclear.

**Purpose:** To propose a standardized model to assess the quality of evidence of abstracts presented at AGMs. To investigate the trend of quality of evidence presented at an AGM.

**Methods:** Two authors independently reviewed all abstracts (from 2012 to 2016) from the Canadian Society of Nephrology. Abstracts were evaluated with a schema published in 2011 by the Oxford Centre for Evidence-Based Medicine (OCEBM) and categorized: level I, representing the highest evidence quality, to level V, representing the lowest.

**Results and Conclusion:** Six hundred forty-two articles were screened. In total, 70% (n = 450) met the inclusion criteria. When assessed, 15% of articles were level I (highest quality), 17% level II, 53% level III, 12% level IV, and 3% level V (lowest quality). A Jonckheere–Terpstra test demonstrated a significant trend of increasing quality of evidence ( $P < .05$ ) and collaboration ( $P < .005$ ) over the 5-year study period. There was a significant correlation between level of evidence and collaboration across years reviewed in the study,  $rs(98) = 20.226$ ,  $P < .001$ . The results indicate a consistent increase in quality of evidence and collaborative submissions over time. To the authors' knowledge, this is the first assessment and analysis of AGM presentation quality within internal medicine and its subspecialties. Documenting and monitoring changes in the quality of evidence with a standardized framework may have implications for promoting collaborative research, AGM attendance, AGM committees, and granting agencies.

## **A Strategy to Develop Coaching in the Competence by Design (CBD) Model**

**Brian Ulmer, College of Medicine-Surgery**

**Co-Author(s): Tanya Robertson-Frey, College of Medicine, PGME, Program Evaluation Specialist Sean Polreis, College of Medicine, Faculty Development, Faculty Development Coordinator**

**Purpose:** The role-out for the Royal College Physicians and Surgeons of Canada (RCPSC) CBD initiative began at the University of Saskatchewan Postgraduate medical programs in July, 2017. To help educate both faculty and residents about “coaching in the CBD model” an educational package was created.

**Methods:** The package consists of 4 components. A comprehensive review article on coaching in medical education, the RCPSC presentation on Coaching in the CBD Model, a self-assessment survey that assesses faculty and residents understanding of coaching and seminars on coaching in medicine. The first package release was in February, 2019 with a follow up release to occur in May, 2019. The coaching seminars were started in February, 2019 and will continue on an as requested basis.

**Results and Conclusions:** This process is ongoing and data will not be available until June, 2019.

## **A systematic review of course content rating methods for medical schools**

Marcel D'Eon, College of Medicine-Community Health & Epidemiology

Co-Author(s): June Harris, Faculty MUN; Claire Wright, Faculty, Chamenade University of Honolulu; Harold Bull, Faculty, USask; Greg Malin, Faculty, AFM; Damon Sakai, University of Hawaii; Kyle Anderson, Faculty, USask; Kalyani Premkumar, Faculty, USask; Trustin Domes, Faculty, USask; Erin Watson, Faculty, USask; Paulette D'Eon, MA, Research Assistant, USask.

**Purpose:** Selecting content for courses is one of the most important activities of curriculum and course development in medical education. Medical knowledge is growing and new topics are being added to an already crowded curriculum. Course planners need to make decisions about the amount of content to include and/or exclude. The purpose of our systemic review was to identify, analyze, and critique the approaches that medical educators have used to make these decisions.

**Methods:** We searched MEDLINE, Embase and ERIC data bases with key words such as content, courses, needs assessment, undergraduate, medical school, and curriculum among others and found 8251 articles published between the years 2002 and 2017. At least two authors screened the titles and abstracts of these 8251 articles. At least two authors then conducted a full text review of 182 articles to arrive at a final list of 106. Finally, at least two authors then extracted the data from those remaining 106 articles and synthesized the results. Disagreements were resolved by discussion (phone, email, or in person).

### **Results**

- A wide variety of methods are used to identify and then rate content for medical courses or specific content areas including the criteria used by judges
- The most popular methods were the Delphi technique and the common on-time survey.
- Few of the studies justified their choices for method, judges, criteria, and threshold for including or excluding content from courses and modules
- Studies rarely attempted to empirically validate the choices of content or even planned a validation exercise

**Conclusion** A wide range of content rating methods are used in medicine with little rationale or justification. Further research on the various elements of the rating methods is needed to determine their efficacy and validity.

## **Building a Comprehensive Model of Prescriber Education for the Responsible Management of Opioids: Initial Efforts of Saskatchewan's Opioid Stewardship Program**

Sarah Liskowich, College of Medicine-Family Medicine

Co-Author(s): Michelle McCarron, Family Medicine Research Scientist – Research and Performance Support

**Purpose:** Saskatchewan has highest rate of hospitalization for opioid poisoning in Canada, at a rate of 20.5 hospitalizations per 100,000 population compared to the national average of 13 per 100,000 people. Recently, Health Canada's Substance Use and Addictions Program awarded more than \$2.3 million over four years for a new Opioid Stewardship Program, which will address the problem at a root cause level. In order to combat the issue of opioid addiction, it is necessary to ensure that all physicians are aware of best practices in opioid prescribing—including guidelines for management of chronic non-cancer pain—and treatment options that provide an alternative to opioids.

**Methods:** A key component of the Opioid Stewardship Program's mandate is raising prescriber awareness about appropriate opioid prescription practices and alternatives for chronic pain management. To that end, physician education efforts are focused on: (1) building awareness of available programs and pathways for the treatment of chronic pain, (2) exposure to an interdisciplinary model of care, (3) building knowledge of best practices in opioid prescribing and upstream prevention of addiction, (4) building professional capacity to provide competent care for pain patients, and (5) advocating for opioid stewardship in the community and with colleagues.

**Results:** Efforts to build a comprehensive physician education program are underway. A survey of physicians soliciting feedback about the education modalities that would best support these learning objectives is currently underway. The multi-year plan of the Opioid Stewardship Program and the role of prescriber education will be discussed.

**Conclusion:** Despite the existence of opioid guidelines for the treatment of chronic pain, prescriber behaviours continue to contribute to poor outcomes for patients. A comprehensive prescriber education plan is one key component of the Opioid Stewardship Program's overall efforts to drive responsible, evidence-based chronic pain management within Saskatchewan.

## **Competency by Design Web-Based Dashboard creation: Innovation through resident and faculty feedback**

Robert Carey, College of Medicine-Emergency Medicine

Co-Author(s): Rob Carey, Grayson Wilson, Venkatesh Meda, Debajyoti Mondal, Rob Woods, Lynsey Martin, Brent Thoma

**Purpose:** Competency by design (CBD) is a competency-based assessment program being implemented in Royal College residency programs across Canada which will require frequent assessment of Entrustable Professional Activities (EPAs). This transition will result in exponentially more assessments, however, the best way to present this data to foster resident learning has not been determined. We investigated this question through the iterative creation of a web-based dashboard.

**Methods:** We received funding from the Office of the Vice-Dean of Research and an exemption from the University of Saskatchewan Research Ethics Board. Initial focus groups were held in July of 2018 with Saskatchewan Emergency Medicine residents. Notes, drawings, and audio recordings were collected, transcribed, and analyzed using a qualitative content analysis. The first iteration of the dashboard was informed by this data and will be further developed through quarterly Plan-Do-Study-Act (PDSA) cycles. During each cycle, focus groups will inform both dashboard updates and a framework outlining the essential elements of a resident CBD dashboard.

**Results:** The themes from the first focus group were graphic visualizations of quantitative data (e.g. linear plots, spider plots, bar graphs, representations of EPA observation rates), easily accessible narrative data that was explicitly tied to the quantitative EPA data, dashboard layout preferences, and representations of non-EPA data and achievements (e.g. rotation schedules or calendars, tracking of the completion of program-required activities, scores on in-training exams, etc). This dashboard was available for the March 2019 cycle of academic advisor coaching and competency committee meetings.

**Conclusion:** We have developed a dashboard to present CBD data with the goal of fostering resident learning and begun to develop a qualitative framework outlining its essential elements. We will conduct 3-4 more PDSA cycles and hope that the resulting framework will inform the design of CBD dashboards for residents in other programs and specialties.

## **Culturally Intelligent Medical Education**

Ponn Benjamin, College of Medicine-Emergency Medicine

Co-Author(s): Dr. James Stempien, Provincial Department Head Emergency Medicine

**Purpose:** Ethnocentrism is an evaluation of another culture according to preconceptions originating in the standards and practices of one's own culture. Social scientists are effective at communicating with other cultures when they recognize that their personal preferences are being superimposed. This principle is especially important for Physicians seeking to educate a different culture.

**Methods:** An Emergency Physician and an EM resident administered exams to EM trainees at Tribhuvan University Teaching Hospital, in Kathmandu. EM is one of the newest recognized specialties in Nepal and there is no standardized process for obtaining EM certification. Two objectives for this educational experience were (i) Constructing EM oral exams that were clinically and culturally relevant. (ii) Examining the political nature of cultural partnerships and how to best forge them.

**Results:** The majority of time was spent at TUTH Hospital. Additional ED visits included Patan & Duhlikhel Hospital. There exists a genuine interest for knowledge and evidenced based practices amidst the younger generation of EM Physicians and Trainees. A strategy to enhance medical education crossing international boundaries has been adapted from Cultural Intelligence (CQ) Capabilities developed by Soon Ang & Lynn Van Dyne. The Four Tenants include (i) Drive –a genuine curiosity and self-confidence to function within a different cultural domain. (ii) Knowledge –an understanding of the similarities and differences that exist between cultures. (iii) Strategy – the ability to interpret diverse experiences and a willingness to be flexible. (iv) Action – the capability to adjust to verbal and non-verbal cues and to operate with ease in unpredictable circumstances.

**Conclusion:** The potential exists for a mutually beneficial partnership in Nepal regarding the advancement of EM. Empowering nationals to excel in the practice of medicine may be a strategic way to have a lasting impact on global health.

## **Curricular Alignment Matrices**

Amanda Stalwick, College of Medicine-UGME

Co-Author(s): Dr. Regina Taylor-Gjevre Assistant Dean Curriculum Professor of Medicine Head, Division of Rheumatology, Department of Medicine, Royal University Hospital

**Introduction:** Ensuring curricular alignment of integrated vertical themes and program/course level objectives is essential. At the University of Saskatchewan, we have developed matrices to ensure program level objectives and integrated vertical themes are aligned with curricular outcomes.

**Methods:** Gap reports are run in our data management system and matrices are developed to visually indicate where in our curriculum we are teaching our program level objectives and integrated theme objectives. The Program Level/Course level matrix identifies where course level objectives intersect with program level objectives. Likewise, the integrated theme matrix indicates where vertical themes intersect with course content.

**Results:** The matrices offer a visual representation of the placement of our program level objectives and integrated vertical themes. They speak to the placement and adequacy of our curricular content and assist in adjudicating curricular change. At a glance, faculty and course reviewers are able to identify where program level objectives and integrated vertical themes are taught.

**Conclusions:** The development and utilization of curricular alignment matrices has enabled us to identify, communicate, and review objective placement in our curriculum. While they are not the only way we monitor our curriculum, they assist in our curricular monitoring, review, and quality assurance process.

## **Curricular Change Process**

Amanda Stalwick, College of Medicine-UGME

Co-Author(s): Dr. Regina Taylor-Gjevre, Dr. Bev Karras, and Dr. Roona Sinha

**Introduction:** Medical curricula and content evolve to reflect new knowledge and medical innovations. There is, however, the potential risk of creating curricular gaps. At the University of Saskatchewan, we have developed a Curricular Change Process to provide oversight and content review in addition to capturing required curricular monitoring information.

**Methods:** A curricular change form and committee review process were implemented to facilitate and provide governance to curricular change. In consultation with course chairs, a curricular change form was developed to capture proposed curricular change and implementation information. This form underwent numerous iterations to capture all the required information; likewise, it evolved from a Microsoft Word format to a fillable online SharePoint form.

**Results:** Creating a Curricular Change Form and establishing a review committee facilitated both the curricular change process and governance needed to monitor our curricular content. Furthermore, moving from a Microsoft Word generated form to an online fillable and searchable SharePoint form enabled the ability to both archive, search, and house our curriculum change data in one location. The fillable and searchable online SharePoint Curricular Change form enables us to capture objective alignment mapping requirements including program level objectives, CanMed Competencies, MCC objectives, and key words. As a result, both the curricular change approval committee and curricular change form have increased our ability to capture required One45 data, improve our quality assurance and monitoring capacity, and increase faculty engagement.

**Conclusions:** Establishing both an oversight committee to review curricular change(s) in addition to a curricular change form facilitated our ability to both monitor our curriculum content and be responsive to curricular changes. Likewise, the online fillable SharePoint form allowed us to capture curricular change and mapping information, search data, house our curricular changes in one searchable location, and increase faculty engagement.

## **Delivering the CURE - Reflections After Inaugural Run**

Harold Bull, College of Medicine-Biochemistry Microbiology and Immunology

Co-Author(s): Dawn Giesbrecht College of Medicine Biomedical Sciences Laboratory Coordinator

**Introduction:** MCIM 398.3 (Team based experimental microbiology) is a new course, first delivered in Jan. 2019. The course is the first offering of a Course-based Undergraduate Research Experience (a “CURE” course) delivered at the U of S. The course involves students doing research projects in small teams, with the course coordinator serving as their mentor/advisor. The CURE experience has some marked differences relative to traditional honours project research experiences. In the traditional individual projects students enter the mentor’s lab and work on a project “pre-designed” for the student. The CURE course is designed to arguably provide a larger research experience, with more emphasis on the process than on the research outcomes. Each team must define their own research question/hypothesis to be tested. They then design experiments that will directly test their hypothesis, obtain/prepare all the necessary reagents required, perform their designed experiments, trouble-shoot to overcome problems encountered (always occurs), repeat or modify their approach(es), obtain reliable results (repeating to obtain statistically reliable data), and finally write up their data in the form of a scientific journal article. Purpose: to deliver a research course to undergraduate science students that provides an authentic research experience and is “resource friendly”.

**Methods:** Course was delivered and observations were taken.

**Results:** Still in progress at the moment but thus far... Nine students, working in three teams are progressing through the trials and challenges of completing their experiments. I will provide a full overview of what we observed and student’s feedback. Spoiler Alert – overheard from a student on day 3 of the course “I’ve learned more the last 24 hours than I have the past three years!”

**Conclusion:** This course format is an exceptional additional tool for exposing students to scientific research. Similar courses are expected on campus shortly.

## **Development of a Practice Improvement Curriculum for Family Medicine Residents in Saskatchewan**

Jason Hosain, Department of Academic Family Medicine, College of Medicine

Co-Author(s): Dr. Olivia Reis, Dr. Brian Geller, Dr. Vivian Ramsden, Dr. Michelle McCarron, Nicole Jacobson, Shona den Brok, Dr. Tanya Verrall, Shari Furniss, Laura Schwartz, Dr. Tom Smith-Windsor

**Background:** The College of Family Physicians of Canada (CFPC) has revised both the CanMEDs-FM Framework and the Standards of Accreditation for Residency Programs in Family Medicine. These revised competencies emphasize using quality improvement, practice-level data, and research to improve everyday practice. The CFPC Practice Improvement Initiative (Pii) has developed national learning objectives and methods to support the translation of these practice improvement competencies into practice.

**Purpose:** The purpose of this curriculum is to ensure Saskatchewan Family Medicine residents are equipped with the knowledge and skills to carry out practice improvement activities and incorporate them into their daily practice.

**Methods:** A design lab was facilitated by the Saskatchewan Health Quality Council (HQC). Attendees included faculty and staff from the Department of Family Medicine (DAFM), SKCFP, and HQC. Using the ADDIE (Analysis, Design, Develop, Implement, Evaluation) instructional design model, an initial analysis was completed and a plan for design initiated. **Results:** Outputs from the design lab included a description of the target learners and purpose, as well as key elements of the curriculum. Residents were described as “junior professionals” who will soon be community-based physicians rather than students and curriculum design must emphasize application to practice. The general residency curriculum was noted for already having a high volume of learning requirements, making integration necessary. Feedback on the design lab process was positive and emphasized the benefits of the design process to facilitate engagement and progress.

**Conclusions:** Convening these stakeholders and utilizing the ADDIE model has created an engaging process to develop meaningful curriculum. Next steps will include the development of a design blueprint, incorporating the Pii learning objectives and elements of successful programs, including those from other DAFMs across Canada. A communication plan will be implemented to ensure key stakeholders are informed and can provide input throughout the design process.

## **Development of a Program Efficacy Review Process for Undergraduate Medical Education**

**Krista Trinder, College of Medicine-UGME**

**Co-Author(s): Regina M. Taylor-Gjevre MD, MSc, FRCP(C) Assistant Dean Curriculum Professor of Medicine Head, Division of Rheumatology Department of Medicine**

**Purpose:** The College of Medicine at University of Saskatchewan has a long-established framework for program evaluation. However, sources of data have historically been reported separately and were not linked together to adjudicate efficacy in relation to the College's Program Learning Objectives (PLOs). To help improve evaluation of the undergraduate program as a whole, the Program Efficacy Review process was developed in 2017.

**Methods/Results:** Internal and external sources of data were identified for each PLO. These included student assessments (e.g. individual items on measures of performance), internal student surveys, AFMC GQ data, and MCCQE I and II results for the past three academic years. This allowed for review of specific student performance toward individual objectives. During the review, leaders in undergraduate education undertook the efficacy review during an annual retreat forum. In groups, participants reviewed all data linked to an objective and indicated whether they felt the objective was being adequately met within each curricular segment, and for the program as a whole. An online scoring tool was employed. Participants also provided feedback on the clarity and sufficiency of the process and data made available, as well as suggestions for improvement. Following the review, a report is generated where scores and feedback are used to classify each PLO as being fully met, partially met, or not met. Feedback from participants indicate they find the review beneficial and recognize the importance for fully evaluating the program.

**Conclusion:** The Program Efficacy Review is a useful process that provides a more complete picture of how well the College's PLOs are being met, within both segments of the curriculum and the program as a whole.

## **Entrusting the Tool – Developing a Process to Monitor the Quality of Entrustable Professional Activities (EPAs) in Educating General Internal Medicine Residents.**

Sharon Card, College of Medicine-Internal Medicine

Co-Author(s): Michelle Elizov, McGill University, Narmin Kassam, University of Alberta

**Purpose:** Competence by Design is a new initiative by the Royal College of Physicians and Surgeons of Canada (RCPSC) aiming to implement competency based medical education into the RCPSC programs in a staggered fashion. Entrustable Professional Activities (EPAs) are used to describe the educational goals that learners must achieve at the end of their residency training. EPAs were developed nationally by consensus. The overall purpose of this project is to allow for quality monitoring and adjustment of the EPAs themselves at the national level. We aim to develop a standardized process to provide feedback to the GIM Specialty Committee at least yearly as to the performance of the EPAs as they are implemented.

**Methods:** Three separate audit and review techniques were used over the last year to collect data and feedback around the performance of the EPAs throughout multiple General Internal Medicine (GIM) residency programs. The process and tools will be described.

**Results:** The different audit and review techniques illustrated the key performance indicators that were useful to advocate for changes in EPAs. Ensuring the EPA was interpreted in the same way across multiple programs (shared mental model) became an important feature and superseded some of the detailed analysis of milestones in importance. Review of individual milestones or wording often had significant scatter in data. Feasibility of collection of data around an EPAs performance was also a key feature. Major key performance indicators were incorporated into a standardized template for programs to discuss at their Competence Committees as CBD is rolled out at each school. The template will be presented.

**Conclusion:** Overall it was found that the concepts to audit revolved around the ability of the EPA to “do its job” i.e. convey to a national audience what activities all learners need to be able to perform.

## **Evaluating Learning in Medical Residents Following Cultural Responsiveness Training**

Cindy Deschenes, College of Medicine

Co-Author(s): Stacey Lovo Grona, James Barton, Anurag Saxena

**Purpose:** The *Role of Practitioners in Indigenous Wellness* online course is delivered through stories of intergenerational trauma, racism and colonialism and the effect on the health care experiences of Indigenous people in Saskatchewan. Importance of cultural safety and communication strategies is emphasized. This evaluation will investigate the impact on learning for medical residents supported to take this content.

**Methods:** Twenty-four Emergency Medicine, Psychiatry and Pediatrics residents completed the 24-hour program from September-November 2018. Interactive components were facilitated by an Indigenous content expert who encouraged self-reflection and an active voice in discussion blogs. Kirkpatrick's Model was utilized to evaluate learning in 4 areas: 1) Reaction: post-course satisfaction survey; 2) Learning: pre and post-course vignette responses; 3) Behaviour: communication strategies evaluated by iterative thematic analysis; 4) Transformational Goal Setting: creation of cultural safety practice goal at course completion.

**Results:** 86.4% of respondent strongly agreed or agreed that the course enhanced their knowledge. 86.4% strongly agreed or agreed that the content was consistent with stated objectives. Initial analysis of communication strategies of medical residents identified themes: 1) importance of ongoing development and continuing education; 2) self-reflection in practice; 3) need for open communication about racism and bias; 3) culturally safe and welcoming communication; 4) patient engagement, patient-centered care and relationship development; 5) respect and integrity; 6) advocacy for resources; 7) culturally informed care; and 8) traditional care options. Analysis of transformational goal setting and responses to vignettes are ongoing.

**Conclusions:** Medical residents reported high levels of satisfaction, and indicated their knowledge was enhanced following the course. Communication strategies discussed self-reflection, open communication about racism, building relationships, provision of welcoming space and traditional options for patients to ensure culturally informed care. More analysis and support for transformational goal setting is required to evaluate long term impacts of learning.

## **Feedback Effectiveness in the TIPS for Residents Workshop**

Marcel D'Eon, College of Medicine-Community Health & Epidemiology

Co-Author(s): Udoka Okpalauwaekwe, PhD student, Department of Academic Family Medicine, Health Science Program, College of Medicine, University of Saskatchewan. Sean Polreis, College of Medicine, Faculty Development, Coordinator, MEd.

**Introduction:** Every academic year the College of Medicine trains over 100 residents in the basic skills of teaching that they will likely need when working with medical students, other residents, other health care providers, patients, and families. All residents are required to complete the training. Part of the two-day workshop is practice teaching in two 5-10 minute sessions that are critiqued with feedback. Residents, who act as the learners for the resident teacher, use an observation form to help identify and organize strengths and weaknesses in the teaching. There are five areas on the forms – set, body, closure, verbal and non- verbal skills, and instructional media.

**Purpose:** In this study, we intend to evaluate the effectiveness of different feedback strategies employed in these teaching workshops.

**Method:** To achieve this, we will use a 2x2 factorial design to identify any differences in the feedback experience for two factors. One is for resident groups where those giving feedback focus on one or two areas of the feedback evaluation form, and resident groups where those giving feedback observe all five areas on the form. The other factor is for resident groups who worked with the same facilitator, versus different facilitators, in the two microteaching sessions. For this, we have developed short survey forms with mostly scaled questions to give to the residents at particular points during their workshop. The responses will allow us to quantify and compare their experiences.

The data will be analyzed using statistical factorial analyses to determine main and interaction effects for the two factors. The forms have been pilot tested with residents, and refined accordingly to ensure clarity and coherence. We believe that determining which feedback strategies are more effective will help to decide how to maximize feedback in our workshops and will have implications for giving feedback in other similar contexts.

## **Foundation in Pathology- CBD program for first year pathology residents: a preliminary experience**

Anna Radomska, College of Medicine-Pathology and Laboratory Medicine

**Background/Objective:** The Royal College of Physicians and Surgeons of Canada requires medical education to be guided by Competence Based Medical Education (CBME) program. I designed a 12-week course for first year pathology residents with a structural program that standardizes resident knowledge in basic histology and general pathology. Based on the list of Entrustable Professional Activities recommended by the College of American Pathologists program for anatomical and clinical pathologists I incorporated into this course: gross dissection, diagnostic reports, frozen sections and postmortem techniques. Here I report a preliminary analysis of the first cohort of residents.

**Methods:** The program consists of 15 histology lectures with the corresponding slide sessions, 10 seminars reviewing general pathology knowledge with discussions and images of macroscopic specimens following a classic pathology textbook "Pathologic basis of diseases" by Robbins and Cotran, grossing of small and large non-oncologic and oncologic specimens, observations of frozen sections and participation in post mortem examination. Residents are evaluated by multiple choice questions (MCQ) test, direct and indirect observation, oral and written slide description, the entrance and exit short questions and answers (Q&A) and slide exam.

**Results:** Ten first year pathology residents participated in this program to date. The Q&A results showed a significant improvement in resident score ( $63 \pm 1$  v/s  $85 \pm 5$  mean $\pm$ SD;  $p=0.0094$ ,  $r=0.8660$ ,  $n=3$ ; exit v/s entrance). Preceptor evaluation score by residents was  $4.5 \pm 0.3$  mean $\pm$ SD,  $n=12$  (1 lowest 5 highest). CANMED evaluation was 4.25 ( $n=12$ ).

**Conclusions:** Preliminary data analysis indicates that Foundation in Pathology program initiated in July 2016 for first year residents at the Department of Pathology and Laboratory Medicine University of Saskatchewan is an effective and well-accepted program for first year pathology residents.

## **Giving medical students a rigorous, reproducible and defensible CaRMS application review process**

Quinten Paterson, College of Medicine-Department of Emergency Medicine

Co-Author(s): Riley Hartmann, College of Medicine, Department of Emergency Medicine, Resident Rob Woods, College of Medicine, Department of Emergency Medicine, Faculty Lynsey Martin, College of Medicine, Department of Emergency Medicine, Faculty Brent Thoma, College of Medicine, Department of Emergency Medicine, Faculty

**Purpose:** The Canadian Residency Matching Service selection process is under scrutiny due to rising rates of unmatched medical students and reports of bias and subjectivity. We describe how the University of Saskatchewan Royal College Emergency Medicine program uses standardized, reproducible and defensible techniques to identify 32 applicants to invite to interview for three positions.

**Methods:** Each application is reviewed by two attendings and two to four residents. Reviewers use standardized, criterion-based scoring rubrics to rate each application. Ratings are recorded within a secure, online spreadsheet in a reviewer-specific tab. Reviewer scores are z-scored and combined to create a weighted application z-score (attendings 41.7%, residents 41.7%, CaSPER 16.7%) for each applicant. Single measures intraclass correlation coefficients (ICCs) track the reliability of the raw scores, while heat mapping provides a visual aid to identify inter-rater scoring discrepancies that are subsequently discussed by all reviewers.

**Results:** In 2017, 2018, and 2019 our program received 75, 90, and 87 applications respectively. The ICCs for the raw scores were 0.38 (poor) in 2017, 0.52 (fair) in 2018, and 0.43 (fair) in 2019, indicating that there was significant variability in the ratings despite the use of a scoring rubric. Weighted application z-scores of 0.24, 0.32, and 0.27 or greater were required to be rated within the top 32 applicants in each year.

**Conclusion:** Our application review combines well-known best practices (the use of a standardized scoring rubric and multiple reviewers for each application) with innovations that ensure reliable scoring: z-scoring each reviewer and identifying rating discrepancies using a heat map. We believe that this application review process is standardized, reproducible, and defensible, and could be adopted by other programs for the selection of residents.

## **How can we best train residents in trauma care?**

Quinten Paterson, College of Medicine, Department of Emergency Medicine, PGY-3

College of Medicine-Department of Emergency Medicine

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**Purpose** The medical community in Saskatchewan has shown its investment in trauma care as evidenced by advancing trauma services in both Saskatoon and Regina, though a formal trauma curriculum at all sites is not yet established. Competency-based medical education (CBME) is a new educational paradigm that will change the way we deliver medical education by focusing on multiple low stakes assessments with a greater focus on direct observation of residents. As trauma is truly multidisciplinary and holds the challenge of ensuring that the needs of multiple programs' residents are met, a rigorous approach to curriculum development within CBME is essential.

**Methods:** The primary purpose of this project was to use Kern's Six-Step Approach to Curriculum Development to provide a rigorous educational consultation to advise the development of a provincial trauma curriculum. A literature search, program director consultations, multidisciplinary focus groups, and curriculum mapping sessions were conducted. The retrieved data and input was collated and thematically summarized to provide a rich narrative of all that can be considered in the development of a trauma curriculum, with final recommendations being made.

**Results:** The literature review reviewed fifteen articles and one abstract. Thirteen program directors of trauma-affiliated residency programs were consulted with discussion notes being summarized. Eight focus groups were completed with both physicians and non-physicians, from a variety of specialties and levels of training. Curriculum maps were created for four resident programs. A list of eight recommendations were gleaned from the rigorous data collection methods.

**Conclusion:** This project presents a thorough educational consultation for the purposes of developing a successful multidisciplinary trauma curriculum. Steps one through four of Kern's Six-Step Approach to Curriculum Development were completed which could guide future curriculum development (steps five and six).

## **Identifying MCC Gaps**

Amanda Stalwick, College of Medicine-UGME

Co-Author(s): Dr. Regina Taylor-Gjevre, Assistant Dean Curriculum, Professor of Medicine Head, Division of Rheumatology, Department of Medicine, Royal University Hospital

**Introduction:** Striving for excellence in our curriculum to ensure we adequately cover MCC objectives is critical for medical students and universities. At the University of Saskatchewan, we have developed a process to screen for significant curricular MCC gaps in our pre-clerkship and clerkship curriculum.

**Methods:** Each of our learning objectives in our curricular management tool (One45) is mapped with an MCC objective. MCC gap reports are run for each course and results collated into an excel spread sheet with the MCC category along the top, course name on the side, and a numerical total at the bottom of each MCC category. The numerical total represents the number of individual curricular locations the topic is taught in the four year program. This visually appealing colour coded table is easily interpretable by educational leads and other faculty members.

**Results:** The collated report is analyzed and MCC categories that indicate fewer than 10 locations are identified are then investigated further. Key word searches and cross comparison are used to determine if the report is accurate or if content is being taught and merely insufficiently mapped. Identified potential gaps are then reviewed by the curriculum committee to determine if curricular change/supplementation is required.

**Conclusions:** The development and utilization of MCC gap reports has enabled us to properly identify MCC curricular gaps and/or under mapping in our curriculum. Gap reports have allowed us to undertake a review of our curricular mappings to topic areas to ensure the success of our students and verify quality assurance. Additionally, the MCC curricular gap report supports our Curriculum Committee review process to efficiently and quickly focus on areas that are deficient in our curriculum.

## **Impact of a novel antimicrobial stewardship mobile app on antimicrobial usage in Saskatoon, Saskatchewan**

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Co-Author(s): Justin Kosar, Antimicrobial Stewardship Pharmacist, Saskatchewan Health Authority

**Purpose:** Technology in health care is proliferating and given the ubiquitous use of smartphones amongst healthcare professionals, a novel platform for knowledge translation in antimicrobial stewardship has emerged. The purpose of this study was to assess the user engagement of the Spectrum mobile app and its impact on antimicrobial use.

**Methods:** The number of active users and sessions, use by healthcare profession and location and daily user engagement time was analyzed. Monthly antimicrobial utilization data on medical units of a tertiary-care academic hospital was measured prior to and after implementation of Spectrum. A Spectrum user satisfaction survey was distributed to healthcare workers in mid-February 2019.

**Results:** Seven months following the launch of Spectrum, there were 744 active users with an average daily user engagement time of two minutes and forty-two seconds. Most Spectrum users identified as physicians (28.1%), pharmacists (23.8%), and residents (20.0%). In November 2018, there was a total of 2418 Spectrum sessions and an average daily Spectrum usage rate of 1.4 sessions per user. High usage was observed in Saskatoon but also extending to other urban and rural centers throughout the province. Amongst 152 survey respondents who indicated using Spectrum, 98.0% agreed Spectrum is easy to navigate, 99.3% agreed Spectrum is useful and 97.4% agreed Spectrum improves the appropriateness of their antimicrobial prescribing. Nine months following implementation of Spectrum on medical units in one tertiary-care hospital, total antimicrobial use significantly decreased by 24.8% ( $p=0.001$ ) and anti-pseudomonal antimicrobial use decreased by 33.4% ( $p=0.01$ ).

**Conclusions:** Spectrum has been widely used amongst healthcare professionals throughout Saskatchewan and its sustained usage supports this innovative app being an effective, localized antimicrobial stewardship tool in providing clinical decision support. Reductions in antimicrobial use likely reflect its dynamic value as a knowledge translation tool in improving guideline adherence and optimizing appropriateness of antimicrobial prescribing.

## **Improving Clinical and Professional Skills: Use of Mobile Medical Simulation for Training Rural Physicians**

Dr. Kalyani Premkumar, Department of Community Health and Epidemiology, College of Medicine

Co-Author(s): Valerie Umaefulam, PhD student, Department of Community Health and Epidemiology, College of Medicine, University of Saskatchewan, Dr. Jennifer O'Brien, Faculty, Department of Anesthesiology, Perioperative Medicine and Pain Management, College of Medicine, University of Saskatchewan

**Introduction:** Rural hospitals recruit family doctors with anesthesia skills to facilitate surgical care. Family practice anesthesia providers in rural hospitals face challenges including professional isolation and limited opportunities for formal continuing education. Simulation facilitates the training of health professionals. To address concerns expressed by FPA providers, a simulation training program was organized in a rural setting.

**Purpose:** We sought to identify the effect of medical simulation interventions on clinical and professional skills of family physicians in rural Saskatchewan, and the impact on human and financial resources.

**Methods:** This was a mixed methods study of a one-day inter-disciplinary workshop organized for registered nurses and FPA providers in rural areas (n=10). Multiple scenarios were used to train participants in clinical skills and procedures. Participants completed pre- and post-workshop surveys evaluating the impact of this experience. Workshop facilitators were interviewed to explore their perceptions on human and financial resources associated with medical simulations in rural locations. One-month post-workshop, participants were evaluated to assess the long-term impact.

**Results:** The participants reported improved knowledge and found the experience valuable. The session prompted participants to reflect on their deficiencies in certain clinical procedures/skills and highlight learning strategies to address the gap. Financial and human resources included cost of renting, transportation of mannequins, and the time required to create the scenarios.

**Conclusion/Potential Benefits:** Medical simulation brought continuing medical education to health professionals in rural locations. These findings may be utilized as a guide for medical simulation programs in other rural areas for improvement of clinical and professional skills.

## **Laparoscopic Myomectomy Simulation Model**

Julie Vermeer, College of Medicine-Obstetrics and Gynecology

Co-Author(s): Dr Marielos Pineda Rivas, Milton District Hospital, Faculty OB/GYN Dr Darrien Rattray, University of Saskatchewan, OB/GYN Faculty, Associate Professor and Regina Site Program Director of OB/GYN program

**Background:** Simulation training is becoming widely integrated into medical education. It provides low stakes opportunity for learners to develop new skills and practice infrequent but critical scenarios. It improves patient safety by allowing learners to practice skills, receive feedback and debrief in a safe environment, preparing them for carrying out the procedure or clinical situation with patients. As Competency Based Medical Education continues to be implemented throughout residency training programs, simulation will play an ever-increasing role in resident education. Simulation in surgical residency training allows junior and senior learners to work together and practice level-appropriate skills while also improving communication. Developing simulation models for surgical training requires a certain amount of creativity and trial and error.

**Purpose:** The purpose of this video is to highlight the role of simulation training in surgical residency. Additionally, it serves as an avenue for dissemination of a creative model for laparoscopic myomectomy that can be adopted by other simulation educators for use in their institution.

**Methods:** A novel approach for simulated laparoscopic myomectomy was developed and residents at the Regina site of the Obstetrics and Gynecology program at the University of Saskatchewan completed the simulation. Two residents at the same level were paired to complete the simulation, taking turns being the primary surgeon.

**Results:** All learners involved in the simulation benefited. Junior learners who had never been involved in myomectomy had an opportunity to try the steps of the procedure in a safe environment. Senior learners had the opportunity to practice the steps and improve laparoscopic suturing skills.

**Conclusions:** This simulated laparoscopic myomectomy provided an excellent opportunity for learners at all levels to improve their skills. This video was created to enable dissemination of this model to other simulation educators, with the goal of allowing residents at different institutions to benefit from our creative approach.

## **Lights, Camera, Scalpel: Insights into medical student preparedness for the third year surgery clerkship and the impact of implementing an instructional orientation video**

Ron Nguyen, College of Medicine-Department of Surgery

Co-Author(s): Trustin Domes, College of Medicine, Department of Surgery, Director of Undergraduate Surgical Education, Adjunct Professor of Surgery, Division of Urology, Faculty; Melissa Wood, College of Medicine, Department of Surgery, PGY-3, General Surgery Resident.

**Purpose:** Evaluate the impact of introducing an orientation video to improve clerk preparedness for the core surgical clerkship rotation.

**Methods:** The project consists of three phases: Phase I was a needs assessment with surveys distributed to clerks, who had completed their rotation, to assess baseline perception of preparedness. The video was evaluated via Phase II, a validation survey, completed by clerks having already completed their surgery rotation. The video was then implemented into the third year surgery clerkship orientation. Phase III involves completion of surveys and focus groups to investigate the impact of the video on preparedness. Quantitative data were analyzed with Student's t-test and chi-square testing. Qualitative data were analysed using thematic analysis.

**Results:** In total 74/159 clerks completed the needs assessment, 5/15 the validation survey, 20/37 the evaluation survey, with 9/37 participating in the evaluation focus groups. In the needs assessment clerks perceived themselves to be slightly prepared for surgical rounding, completing a surgical consult and writing surgical notes and orders, while being somewhat prepared to practice operating room (OR) etiquette and to function in the OR. In the validation phase, students believed if they had watched the video prior to their clerkship, it would have helped them to be moderately to very prepared to complete all six tasks (Tasks: surgical rounding, completing a surgical consult, practicing proper OR etiquette, functioning in the OR, writing surgical orders and notes). In the evaluation phase, clerks rated themselves as slightly to somewhat prepared to perform all six tasks. Qualitative comments from clerks revealed they felt the orientation video did help better prepare them in general.

**Conclusion:** Improving the orientation of clerks to their surgery rotation leads to an improved learning environment as reported in qualitative measures by clerks. However, it did not show any substantial change in clerk self-reported preparedness.

## **Medical students' perspectives of the impact of 'pimping' on their learning experiences**

Ashley Palmer, College of Medicine

Co-Author(s): Dr. Greg Malin, College of Medicine, Dept. of Academic Family Medicine, Assistant Professor and Year One Chair UGME

**Introduction:** Medical students gain valuable experiences by engaging in clinical encounters with patients, which are supplemented by physician preceptors who ask questions to gauge the students' knowledge and solidify knowledge. However, some physician-student interactions end up becoming interrogation or "pimping" sessions. Pimping is the name given to encounters when preceptors ask questions that are far beyond the students' level, or excessively question a student to make them feel inferior or embarrassed. In this study we asked undergraduate medical students their perspectives on how pimping affects their learning experience and motivation.

**Methods:** Medical students from the University of Saskatchewan were invited to engage in an individual semi-structured interview that explored their experiences of pimping in the undergraduate program. Nine 1st year students, two 2nd year students, two 3rd year students and two 4th year students participated. Data was transcribed verbatim and analyzed using Nvivo software. Themes were then generated from content analysis.

**Results:** The results indicated that most students were disengaged during pimping sessions and felt a decrease in confidence immediately after. However, some students reported pimping helped to reinforce information and left them with a feeling of resilience. Additionally, both students who reflected on pimping as a positive or negative experience were extrinsically motivated to study to avoid embarrassment.

**Conclusion:** Future research investigating more student's perspectives on pimping during their 4th year would be beneficial to obtain a fuller grasp on the effects of pimping throughout undergraduate medical education.

## **Non ST-Elevation Myocardial Infarction (NSTEMI) Management Quality Improvement in Saskatchewan**

Andrea Lavoie, College of Medicine-Medicine (Cardiology)

Co-Author(s): Lori Albers BSP ACPR College of Pharmacy, Jean Huang BSP (pharmacy student at time of review), Jordan Kalesnikoff BSP (pharmacy student at time of review), Bill Semchuk MSc PharmD FCSHP

**Background/Purpose:** A multidisciplinary acute coronary syndrome (ACS) working group was established in 2013 to identify barriers and support consistent, evidence-based treatment of patients in Saskatchewan. To achieve this, we utilized quality improvement initiatives (knowledge translation, improved access to guideline-recommended therapies, creation of NSTEACS order set, served as a resource to care providers). We sought to understand practice patterns in the management of NSTEACS in order to refine and focus quality improvement activities of the working group.

**Methods:** Students completed 5 site visits in summer 2016 to assess medication formulary status, order set content, conduct focus groups to discuss barriers in ACS management, and complete a retrospective chart audit. Eligible patients were those treated for NSTEMI in 2015 at a local site for a minimum of 24 hours. A maximum of 20 charts per site were included.

**Results:** Five hospitals participated and 80 patient charts were audited. Eighty percent of sites had an order set, with use in 36% of charts audited. Order set content was variable for investigations, antithrombotic agents, and risk reduction medications. ADP receptor antagonists were initiated in 96.3% patients within the first 24 hours, clopidogrel in 76% of patients and ticagrelor in 20% and only in tertiary care. There was variance between and within centers in use of secondary prevention therapies. Themes from focus group discussions included: need for ongoing focused education, challenges with implementing an order set, and need for alignment of practice within and between tertiary care center prescribers.

**Conclusion:** Variance was seen in the management of NSTEMI patients across Saskatchewan. Audit data and feedback from care providers influences working group initiatives and ongoing knowledge translation activities. An audit of contemporary practice is planned to assess changes in adherence to evidence-based treatment, barriers to providing optimal care, and guide next steps of the working group.

## **Reconceptualizing Student Work: Value and Implications**

Maryam Yasinian, College of Medicine-Community Health & Epidemiology

Co-Author(s): Marcel D'Eon, Faculty, College of Medicine-Community Health & Epidemiology

**Purpose:** The concept of student work, while well researched, is not well explained. Multiple factors have been associated with student workload but a clear, useful, and satisfying definition of student work has not been advanced.

**Methods:** We reviewed the available literature on student workload. We critiqued and extended it to develop our model. We then consulted with graduate students and educators incorporating their ideas and suggestions.

**Results:** We have defined student work as the product of academic effort and course achievement. Academic effort consists of four domains: cognitive, physical, psychological, and social. Students enter courses with an array of personal resources that allow them to generate effort in each of the domains and accomplish work in their courses. Our model allows for better analysis and organization of the factors that are associated with student work. Furthermore, there are important implications of this model. We define course requirements as those outlined in the syllabus and these are the same for everyone. Course demand is the average amount of work done by students in a typical cohort of students taking the course. Course anticipated demands would be the amount of effort students expect or anticipate needing to attain a desired level of achievement in the course. Our model of student work can be used by policymakers to redesign and modify learning environments. Considering student resources for generating student academic effort is an opportunity for policy makers and teachers to influence the resources that students are able to bring to a course and therefore their level of achievement.

**Conclusion:** Reconceptualizing student work as the produce of academic effort and course achievement provides an elegant and useful model for organizing and analyzing the various factors often associated with student workload. There are useful implications for policy and for further development.

## **The Clinician Educator Diploma Program**

**Rob Woods, College of Medicine-Emergency Medicine**

**Co-Author(s): Anurag Saxena PGME Assoc. Dean , Kent Stobart Vice Dean College of Medicine**

**Purpose:** The Clinician Educator Diploma Program is an Area of Focused Competence of the Royal College of Physicians and Surgeons of Canada. This is a relatively new program that allows clinicians to gain expertise in various domains in medical education, giving them the skills to become a consultant in this field. There is currently only one training program in Canada.

**Methods:** Faculty Development is supporting the exploration of this program over the next year to see if we could bring this program to the University of Saskatchewan. With our newly created Masters of Medical Education at the USask, there is an opportunity to collaborate and leverage synergies between these two programs. This will create various options for individuals looking to gain more skills in the area of medical education.

**Results:** This initiative will begin July 2019.

**Conclusion:** As more faculty members take on enhanced training in medical education, they will bring more expertise to leadership roles in the College of Medicine. This will benefit our students, training programs and our patients.

## **The Impact of Singing Lessons on Medical Student Communication**

Bruce Radmacher, College of Medicine

Co-Author(s): Bruce Radmacher, Andrea McCulloch MMus Voice Instructor, Greg Malin, CoM

**Background:** Clear communication between physician and patient is critical for safe and effective patient care. This research evaluates the potential of pedagogical vocal coaching for medical students in improving clinical interactions not only by improving confidence, from an advanced awareness of correct phonation. It is essential that the physician learns to authentically connect with each patient, but first they must connect with their own instrument.

**Methods:** Four students participated in weekly hour-long singing lessons for 10 weeks. In addition to lessons, participants performed in a group masterclass where they were given the opportunity to hear the transformation in each other's voices. Participants applied their vocal skills in 3 OSCE-style simulated patient interactions, each with a unique clinical scenario. At the end of 10 weeks, exit interviews were conducted to characterize and evaluate the participants' experience and journey through this process.

**Results:** After the study, participants reported not only becoming more aware of their own vocal habits and communication deficiencies, but in others' as well. In addition, they felt they had been given the tools to address these deficiencies. This led to a feeling of empowerment as described by the participants. Fear of vulnerability was cited as a reason for poor communication and vocal production. By the end of study, they reported their ability to manage that fear had improved, leading to stronger communication.

**Conclusion:** If strong communication is related to better patient/doctor interactions, then a physician's ability to speak in a clear, confident way will result in greater patient satisfaction and better health outcomes. The hope is that the application of this technique will facilitate more trust and better communication between physician and patient. By empowering physicians to feel comfortable with themselves, this will allow patients to feel more comfortable in their presence and more confident in their abilities.

## **The near peer clinical skills initiative (PULSE): A pilot project for pre-clerkship students at the University of Saskatchewan**

Zachary Huschi, College of Medicine, 2nd Year Medical student, Amanda Ames, College of Medicine, 2nd Year Medical student

Co-Author(s): Adam Neufeld, College of Medicine-UGME, Dr. Meredith McKague, Dr. Greg Malin, Krista Trinder, (Faculty, College of Medicine, UGME)

**Purpose:** Peers United in Leadership & Skills Enhancement (PULSE) is a new near-peer mentorship initiative at the USask. During sessions, students from second year are matched with first years in a semi-structured clinical setting. This form of learning is well established in educational theory and is known to benefit both teacher(s) and learner(s). However, a major issue with most studies exploring the benefits of near-peer teaching in medical education has been use of non-validated questionnaires, hindering generalizability and standardized implementation elsewhere. To our knowledge, the present investigation represents the first to use validated wellness questionnaires to assess students' subjective experiences, and Objectively Structured Clinical Examination (OSCE) scores, to objectively quantify the impact of PULSE on academic performance.

**Method:** A mock OSCE will be held April 9th and 10th. Following sessions, student learners/instructors will be invited to fill out a survey containing four validated questionnaires; Learning Climate Questionnaire (assesses the degree learners perceive their instructors as autonomy supportive), Perceived Competence Scale (assesses degree students perceive themselves as competent in their learning/teaching), College Student- and Teacher- Subjective Wellbeing Questionnaires (both scales assess well-being and sense of connectedness in their role, respectively). Data will be analyzed using students attending the mock OSCE but not any PULSE sessions, as a control group. Additionally, end-of-year OSCE scores will be analyzed for statistical differences in academic performance between PULSE attendees and controls.

**Results:** Thirty-four first year learners and sixteen second year instructors have attended PULSE sessions, signaling interest from the students.

**Conclusions:** PULSE is an innovative mentorship initiative at the USask. Objective/subjective assessment will help shed light on its potential to foster well-being and connectedness among medical students, as well as its clinical utility, with broader implications beyond our institution.

## **Ultrasound-guided Peripheral Intravenous Access Experiences Among Medical Residents**

**Keren Ho, College of Medicine-Internal Medicine**

**Co-Author(s): Dr. Micheal Prystajeky, College of Medicine, Internal Medicine, Faculty/staff physician**

**Purpose:** Peripheral intravenous (PIV) access is the most common procedure in the emergency department. Hospitalized medicine patients were the majority (40%) of vascular access referrals for difficult IV access (DIVA)<sup>2</sup>, though incidence and consequences of DIVA is unknown. Introduction of ultrasound (US) for central venous lines (CVL) has led to increased success rates and faster access. This technology has been translated to PIV, especially in those with or predicted DIVA. All clinicians should be comfortable with US-guided PIV<sup>1</sup>. We explore the experiences of residents encountering DIVA amongst hospitalized medicine patients and their perceptions of obtaining access.

**Methods:** We distributed surveys to all internal medicine residents at the University of Saskatchewan (N=52). Baseline characteristics of medicine residents were collected, including prior occupational experiences with obtaining IV access. Frequency of encountering DIVA, confidence and training of common procedures and determining interest in US-guided PIV were explored. Data was analyzed using descriptive statistics.

**Results:** There was a 78% response rate and 95% completion rate. Most residents (92%) encountered a patient with DIVA in the previous 6 months, with 82% of respondents at least occasionally observed delays in care. Five residents (14%) reported being very or completely confident in blind PIV. Four residents (11%) reported being very confident in US-guided PIV, and no residents reported completely confident with US-guidance. Few (38%) had formal training in blind PIV, and only 13% (n=5) received training in US-guided PIV. Most respondents (82%) were interested in US-guided IV training.

**Conclusion:** Most medicine residents encountered patients with DIVA, though they lacked training in both PIV placement techniques, despite reported interest in training. Training should reflect the evolution of medicine. We identified a curricular need for a formal US-guided IV placement training for internal medicine residents.

## **Use and mis-use of self-assessments for program evaluation**

**Rebecca Zhao, Medicine, CH&E, Master's student, College of Medicine-Community Health & Epidemiology**

**Co-Author(s): Marcel D'Eon, Faculty, College of Medicine-Community Health & Epidemiology**

**Purpose:** Grouped or aggregated self-assessments have been validated as a method to acquire valuable learning outcome data. Many medical education researchers and educators who use self-assessments for program evaluation do not do so properly.

**Methods:** We searched the literature for examples of the use of self assessments. We looked at all the articles in five top medical education journals for both 2018 and 2017. We also looked at studies that used self-assessments and included references to papers that explained these best practices. We then extracted the data that indicated how people had used or mis-used self-assessments.

**Results:** We found many examples of the mis-use of self-assessments including asking about confidence, neglect of the stated objectives of the interventions, and comparing pre-intervention self-assessments with post-intervention self-assessments. We have also compiled a short list of best practices to guide medical educators including the use of retrospective pre-tests.

**Conclusion:** Self-assessments can be very useful and inexpensive ways to gather learning outcome data but the method is not being used well and therefore program evaluation studies are weaker than they need to be.

## **Using innovative interventions to actively engage students in Introductory Microbiology courses**

Kalyani Premkumar, College of Medicine-Community Health and Epidemiology

Co-Author(s): Harold Bull Medicine Biochemistry, Microbiology and Immunology Faculty

**Purpose:** To increase student engagement, we introduced an innovative active learning strategy to our introductory microbiology course. We introduced a project that had students work in teams of three to create digital posters on one of three general themes. Peer assessment of other's posters as well as peer-based review of fellow team members were included as part of the project. Student teams were tasked to create a PowerPoint virtual poster on one of three areas of investigation a) report on a microbe or immunology story in the news; b) interview a scientist engaged in research c) research a microbiological topic of their choice. To help disseminate their findings to their peers, all posters were made available to all students within the course site. All posters were assessed for grades by the instructor, using a shared rubric.

**Methods:** The effectiveness of the project was assessed by administering the motivated strategies for learning questionnaire and the revised two factor study process questionnaire pre- and post-course. All reviews and surveys were administered online using a survey tool. Post course focus groups were also utilized to gather additional in-depth data on the effects of this intervention.

**Results:** We find gains in deep versus surface learning and supporting evidence of learning retention.

**Conclusion:** Active learning attempts using student driven projects can be effective in large class settings.

## **A Randomized Comparison Of Hands-on Versus Video-based Training Program Designed To Enhance Pelvic Floor Examination In Patients Presenting With Chronic Pelvic Pain**

Maria Giroux, College of Medicine-Obstetrics and Gynecology

Co-Author(s): Suzanne Funk, BMRPT (pelvic floor physiotherapist) Erwin Karreman, PhD (statistician, University of Saskatchewan) Huse Kamencic FRCSC, MD (Obstetrician and Gynecologist, University of Saskatchewan) Rashmi Bhargava, FRCSC, MD (Obstetrician and Gynecologist, University of Saskatchewan)

**Background:** Pelvic floor myalgia is a common cause or contributor to chronic pelvic pain that remains a frequently unrecognized. Although palpation remains the best method of assessment for pelvic floor myalgia, few gynecologists perform assessment of the pelvic floor musculature. There is no evidence regarding the most effective method of teaching the assessment of pelvic floor musculature.

**Purpose:** The purpose of this study was to compare the effectiveness of hands-on vs video-based training of a comprehensive assessment of the pelvic floor musculature.

**Methods:** A randomized single-blinded trial was conducted between January 16 and November 19, 2018, at the University of Saskatchewan. 46 participants were enrolled into the study and randomized to video (n=23) and hands-on (n=23) groups. Both groups underwent a pre-training assessment that consisted of a written examination and an Objective Structured Clinical Examination (OSCE). Both groups of participants had a didactic session. The video group then viewed an instructional video and the hands-on group underwent a hands-on training session with a pelvic floor physiotherapist. Both groups then underwent a post-training assessment. Primary outcome measure was the change in written examination and OSCE scores from pre-training to post-training assessments. Secondary outcome measures were the change in the level of comfort with performing pelvic floor examination and usefulness of the training program for clinical practice.

**Results:** Both hands-on and video-based training methods were equally effective. The mean comfort level improved significantly in both groups ( $p < 0.001$ ). There was no difference in the degree of improvement in comfort level between the 2 groups ( $p = 0.19$ ). Participants found the training program to be useful for their clinical practice.

**Conclusion:** Both video and hands-on are equally effective training methods. This study presents an effective training program to identify a possible muscular contribution to chronic pelvic pain and provide early referral for appropriate treatment.

# *Lifelong Learning*



UNIVERSITY OF SASKATCHEWAN

College of Medicine

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## *Poster Abstracts*

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LEADERSHIP  
TEACHING IN THE CLASSROOM

WELLNESS

OFFICE PRACTICE

TRIPLE C FIELD NOTES

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SCHOLARSHIP

ASSESSMENT

## **Competence by Design in University of Saskatchewan Royal College of Physicians and Surgeons (RCPSC) Programs – Are We Ready? How Do We Know?**

Sharon Card, College of Medicine-Internal Medicine

Co-Author(s): Dr. Anurag Saxena, Professor and Associate Dean, Postgraduate Medical Education, University of Saskatchewan

**Purpose:** Competence by Design (CBD) is the RCPSC version of competency based medical education. It is being implemented into all the RCPSC disciplines in a staggered fashion starting in 2017 and continuing for at least 5 years. Each university including the University of Saskatchewan postgraduate medical education office (PGME) is responsible for monitoring the implementation of CBD in the individual programs. The purpose of this project is to initiate the development of a process to monitor readiness for implementation of CBD in cohorts of programs.

**Methods:** The overall implementation readiness status of a program has been assigned an entrustment score based on the Entrustable Professional Activity (EPA) – “Implementing competency based medical education”. Entrustment scores are used in competency based medical education to indicate the level of assistance a person (or in this case program) need to do a task. They range from 1 – outside assistance needed to intervene and implement CBD to 5 – no outside assistance needed, program is capable of fully implementing CBD.

**Results:** Through literature review, and review of RCPSC CBD information multiple steps in readiness for CBD implementation were developed. These steps need to occur starting 2 years prior to launch of CBD. These were then distilled down to 8 major milestones that programs need to have in place to be fully ready for launching CBD in their program. 2 of the 8 milestones are dependent on RCPSC initiatives and are not in the control of PGME. The June entrustment results will be presented during the Medical Education Research and Scholarship Day.

**Conclusions:** A novel way to assess readiness for programs discipline specific CBD launch is being developed utilizing entrustment scores and milestones. This mirrors the metrics that programs will be using to assess their graduates readiness for independent practice.

## **Competency self-assessment in UGME preclerkship and clerkship curricular segment**

Tatiana Fras, College of Medicine-COM

Co-Author(s): Regina Taylor-Gjevre, Christa Kaytor

**Background:** Program objectives outline expectations for graduating students but are less clearly utilized for measuring competencies earlier in training. Development of a term/year specific competency-based milestone framework will allow students to recognize areas requiring more focus. The creation of step-wise and level-specific objectives empower students to be involved in their learning, leading to increased confidence in clinical knowledge and skills prior to residency.

**Methods:** A literature review of fundamentals of EPAs preceded the drafting of competencies related to program level objectives for pre-clerkship and clerkship. Focus group data questions were analyzed using non-parametric testing, guiding both faculty and student-based sessions. A survey for perspectives on draft competencies and attitudes towards self-assessment with opportunity for narrative feedback was distributed to UGME students. Qualitative data from the narrative feedback was analyzed using thematic analysis.

**Results:** Individual program objective assessment tools graduated for specific curricular segments within an integrated survey component yielded a response rate of 35%. 80% of respondents recognize self-assessment as an important tool in UGME, and two thirds agreed that an integrated framework or application would be useful in tracking progress.

**Conclusion:** Creating a clear, concise and specific objective-based framework for self-assessment contributes to future curricular planning, development and assessment. EPA frameworks are currently being integrated in residency and select UGME programs to improve transition from undergraduate to graduate level. Introducing this style of assessment at University of Saskatchewan will contribute to higher rates of student accountability through self-directed learning and ease transitions throughout all levels of undergraduate medical education.

## **Development of the Medical French Language Certificate as a socially accountable option for undergraduate medical training**

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**Background:** Access to health care services in your own language is a matter of quality and safety especially when communication is a key component of treatment outcomes. Undergraduate medical students who have been trained in French immersion programs through high school represent an untapped resource and could become bilingual healthcare providers with some focused skills training.

**Purpose:** 1.To develop a structured and recognized medical French certificate program for Health Sciences students. 2.To standardize the curriculum to obtain official recognition of this medical French competency.

**Methods:** An environmental scan of available training resources and programs was performed, including phone interviews with bilingual and extracurricular French programs across Canada. A 2018 pilot French medical communication course facilitated by La Cité Universitaire enrolled 7 University of Saskatchewan medical students participants. Currently, an interdisciplinary, interorganizational advisory committee is working to develop the program based on the results from the environmental scan and pilot course feedback.

**Results:** The program will involve 3 levels. The Basic level includes all currently available French health-related activities. Level I involves a 39 hours French medical terminology course directed to all health sciences students with the goal of improving general medical communication with patients. Facilitated by La Cité Universitaire, University of Regina, students will be streamed according to their assessed French ability. Level II is specifically for medical students, and includes 10 modules developed by Saint-Boniface and the University of Manitoba, as well as direct patient experiences through French-speaking elective during clerkship.

**Conclusion:** A Certificate of will be awarded to medical students who complete all 3 levels of the program. To be piloted in Fall 2019, the program will be refined through ongoing feedback. This program has the potential to improve access to health services in French Saskatchewan.

## **Evaluation of a Pharmacy Department Continuing Education Framework (EDGE)**

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**Background:** Provision of quality, professional education is complex. Several adult learning theories, as well as modern and interactive educational practices, have been shown to improve effectiveness of adult learning. Competence in successful delivery of continuing education may be facilitated with a standardized framework.

**Purpose:** The purpose of the study is to develop a continuing education framework for clinical pharmacists in SHA Regina. Using this framework, we seek to evaluate its impact on knowledge transfer and retention in pharmacists with varying levels of experience; and to evaluate pharmacist satisfaction with the framework, as both learners and facilitators.

**Methods:** This pilot project included the development, implementation, and evaluation of an education framework for provision of pharmacist-led education sessions. Development of the framework was guided by literature regarding adult learning principles, MainPro+®, and CCCEP criteria for continuing education models. Pre- and post-test questionnaires based on session-specific learning objectives were delivered to attendees before and after each session to assess knowledge transfer, and again at two weeks post-session to assess knowledge retention using the new framework. Pre- and post-intervention satisfaction surveys were also distributed to all eligible, consenting SHA Regina pharmacists.

**Results:** This project, which is in its final stages of implementation, will be completed in report format by the end of May 2019, prior to conclusion of the pharmacy residency year. Twenty-seven pharmacists (50%) met inclusion criteria and consented to participate. Four education sessions were completed utilizing the framework. Anticipated results will include impact of the framework on: knowledge transfer and retention; learner confidence in the clinical topics presented and in applying learnings to practice; satisfaction with content development and delivery; and perceived relevance of topics to personal and departmental practice.

**Conclusion:** Potential implications are that this new framework could be implemented for all education sessions, and may spread to other, non-clinical/therapeutic education.

## **Evaluation of a vulnerable/underserved curriculum at a small Canadian urban family medicine residency program**

Megan Clark, College of Medicine, Department of Academic Family Medicine

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**Purpose:** +R43 CanMEDS-FM and the College of Family Physicians of Canada (CFPC) have identified competencies pertaining to working with vulnerable/underserved populations, for which our residency training site implemented a curriculum.

**Methods:** In July 2016, our residency training site (10-14 residents per year) implemented a vulnerable/underserved curriculum, consisting of lectures, clinical experiences and experiential learning at community service organizations. Clinical experiences included methadone, inner city and immigrant/refugee health clinics. Community exposures included visits to a needle exchange/HIV service organization, the Mobile Crisis mental health unit, and a detoxification centre. A mixed-methods survey to evaluate the curriculum based on the CanMEDS-FM and CFPC 99 Topics competencies was distributed to all residents in June 2018. The response rate was 41%.

**Results:** Using a 5-point scale, residents (n=9) agreed the vulnerable/underserved curriculum increased their confidence managing social issues (M=4.1, SD=0.3), communicating with patients from various backgrounds (M=3.9, SD=0.6), taking a social history (M=4.2, SD=0.7), collaborating with interprofessional healthcare providers (M= 4.0, SD=0.5), negotiating conflict with patients (M=4.0, SD=0.9), matching patients' needs with resources (M= 4.0, SD=0.5), and incorporating health promotion with patients from various backgrounds (M= 4.1, SD=0.6). Residents rated themselves as less confident in population-specific skills, such as working through a translator (M= 3.2, SD=1.0), medically managing patients with HIV and Hepatitis C (M= 3.7, SD=0.5), and describing feminizing and masculinizing hormone regimens for transgender patients (M= 3.0, SD=1.0). Qualitative recommendations included adding visiting clinics at First Nations reserves, more clinical exposure to transgender patients, and infectious disease clinics for HIV/Hepatitis C management.

**Conclusion:** The new vulnerable/underserved curriculum increased residents' comfort with working with patients from diverse backgrounds, including newcomers to Canada, transgender patients and patients of low socioeconomic status. Lower-yield experiences have been removed from the curriculum. Opportunities to learn more about working with Indigenous, transgender and HIV+/Hepatitis C+ patients will be explored.

## **Introducing Competency-Based Assessment into the Clinical Integration Syllabus.**

Matthew Kushneriuk, College of Medicine, Department of Academic Family Medicine

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**Purpose:** Clinical Integration is an undergraduate medicine course at the U of S spanning Year 1 and 2. Clinical Integration is designed to provide students with opportunities to gather and integrate knowledge and clinical reasoning skills. Within the course, students engage in Ethics, Interprofessional Problem-Based Learning, Information Literacy, and Clinical Reasoning Cases that aim to develop critical thinking skills and integrate the information learned in other courses. During the 2019 fall term a new model of assessment, Competency-Based Medical Education (CBME), will be introduced. This type of assessment is a marked shift from previous Clinical Integration courses and has been implemented as per student feedback. In order for a student to be considered “competent” they will need to successfully prove they are competent across all competency assessment points and milestones aligned with that particular competency. These competency assessment points will be averaged to generate the final grade for that particular competency. As students will have multiple opportunities throughout the term for assessment of each competency, it is expected that feedback will be provided earlier in the term and will be better able to target individual education needs.

**Methods:** A syllabus has been developed for the upcoming term that has identified eight competencies that must be successfully attained to pass Clinical Integration. Each competency must be proven at least as many times as described in the syllabus to be considered competent. Throughout the term, student feedback will be garnered to improve processes. Data will be collected to analyze student feedback. If possible, we will aim to collect data to analyze how this model of assessment compares with a traditional subject-centred assessment model.

**Results:** Pending.

**Conclusion:** Pending.

## **Medical Imaging in the Masters of Physical Therapy Program: Evaluating Confidence and Estimating Previous Learning**

Soo Kim, College of Medicine-School of Rehabilitation Science

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**Introduction:** Physical therapy programs need to ensure students are adequately prepared and confident to enter practice with a strong foundation in Medical Imaging. The amount of Medical Imaging instruction varies across programs. At the U of S, 3 hours of lecture and 2 hours of self-directed study is provided. To date, however, students' perceived confidence on medical imaging and previous training or learning experiences have not been evaluated.

**Purpose:** To investigate 1) students' perceived confidence on three course objectives: describe principles of radiology and radiation; outline the utility and basic methods of application of different Medical Imaging techniques with musculoskeletal conditions; and compare and contrast stages of bone healing on plain films; 2) previous training and viewing of medical images prior to the course.

**Methods:** Forty first-year students rated their confidence levels on the three objectives through a questionnaire administered at the beginning and end of the course. Students also reported any previous training in Medical Imaging and estimated previous viewing of medical images (number of hours). **Results:** At the beginning of the course, more than 77% of students reported not being confident on all three objectives. At the end of the course, more than 68% of students reported being confident on all three objectives. No students had any formal training in Medical Imaging. Four students reported having never viewed medical images prior to the course, 20 reported having < 1 hour, 11 < 2 hours, and four <5 hours of viewing experience.

**Conclusions:** With the current content and level of instruction, the majority of students felt confident on course objectives related to Medical Imaging by the end of the course. The majority of students had very limited experience viewing medical images prior to the course and this should be considered with further curriculum development in this area.

## **Medical student attitudes towards providing care to people who use drugs: a survey of third-year medical students at the University of Saskatchewan**

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**Purpose:** Learners often have their first experiences interacting with people who use drugs (PWUD) and treating substance use disorders (SUD) during medical school. Misperceptions and negative attitudes towards PWUD emerge during this time but may be prevented with early education. The University of Saskatchewan provides two preclinical lectures on SUD and no formal addiction medicine training. This study evaluated medical students' attitudes towards PWUD.

**Methods:** Third year medical students attending the University of Saskatchewan were invited to electronically complete the previously validated Drug and Drug Problems Perceptions Questionnaire (DDPPQ), which explores five attitude domains using 20 items, each scored on a 7-point Likert scale. Mean items scores were grouped into respective attitude domains for analysis.

**Results:** The survey was distributed to 103 students. There were 37 complete (35.9%), and 67 partial responses (65.0%). There was strong positive agreement in all attitude domains (mean range 4.26 to 5.44). Students strongly agreed with attitude domains of 'role legitimacy' (whether their role should include working with PWUD), 'role-related self-esteem', and 'job satisfaction'. There was significant disagreement (Likert scores of 1-3) with the statements "I feel I can appropriately advise my patients/clients about drugs and their effects" (39.4%) and "I feel I know enough about the psychological effects of drug use to carry out my role when working with drug users" (51.3%).

**Conclusion:** Medical students agree that it is their responsibility as healthcare providers to work with PWUD, but don't feel prepared to provide long-term counseling on drug use and its effects. Increased addiction medicine education that addresses knowledge and skill gaps will be embraced by many students and empower them to work with PWUD. Next steps will include introducing curricular changes and evaluating their impact on student preparedness towards working with PWUD.

## **Novel-Case Learning Environment for Surgical Education**

Regan Brownbridge, College of Medicine

Co-Author(s): Amit Persad - College of Medicine, Department of Neurosurgery, Sub-Investigator, Resident Julia Radic - College of Medicine, Department of Neurosurgery, Principle Investigator, Faculty

**Purpose:** To create a novel-case based virtual patient simulator for neurosurgical trainees and to determine the educational value of this tool.

**Background:** Case based learning through virtual patient (VP) simulators is expanding within medical education. Current VP simulators usually consist of linear patient cases and multiple-choice questions, which limits the fidelity and educational potential of these simulators. We attempt to address these limitations by integrating natural language interaction and building branching cases with ample opportunity for the trainees to explore various outcomes related to their clinical decisions. This type of innovation is sparsely mentioned in the literature. As so, our VP simulator will represent a novel learning tool for neurosurgical trainees.

**Methods:** A case study platform (that has been previously published for cases in other fields) will be revised for neurosurgical cases. The cases, prepared by the research team, and software will be independently validated by neurosurgery residents and faculty. Following the validation of the initial cases, neurosurgery residents and faculty will contribute to building a larger case library. We aim to trial the software at two centers, Saskatoon and Winnipeg, during weekly collaborative neurosurgery teaching rounds. The impressions of the platform will be measured through two validated medical education questionnaires and a neurosurgery discipline specific survey, developed by the research team.

**Results:** The project is ongoing, and no results have yet been obtained. Data collection will focus on providing insight into research problems including: patterns of trainee interactions with VP cases, the learning impact of VP cases of various formats, and the longer-term impact of how these tools can be adopted as regular tools for learning.

**Conclusions:** This project could beneficially impact resident learning as a valuable resource in surgical education.

## **Pharmacist Preceptor Perceptions of Experiential Learning: a Phenomenological Study**

Shauna Gerwing, College of Medicine

**Purpose:** The purpose of this study is to describe the lived experience of experiential learning by pharmacist preceptors. Questions guiding the research include: what are preceptor perceptions of experiential learning at the University of Saskatchewan? And, what enhances or constrains pharmacy preceptors understanding, desire, or ability to engage in experiential learning?

**Methods:** Qualitative methodology, in particular, phenomenology as guided by Max van Manen (van Manen, 1990) is used in the study. This method is an iterative process that involves turning to the phenomenon of interest, investigating experience as it is lived rather than conceptualized, reflecting on the essential themes of the phenomenon, describing the phenomenon through writing and rewriting, maintaining a strong and oriented relation to the phenomenon, and balancing the research context by considering the parts and the whole. Semi-structured, one-on-one interviews, with pharmacy preceptors from hospital and community practice were conducted across Saskatchewan. Themes, anecdotes, and detailed descriptions to gain understanding and insight into the lived experience of experiential learning of preceptors are provided in this hermeneutic, interpretive, descriptive, phenomenological analysis.

**Results:** Preliminary themes identified include: time for everything, finding a balance, building relationships, learning and teaching, motivation, reflection, and difficult situations. Analysis is currently ongoing.

**Conclusion:** This phenomenological project may allow others, including educational institutions, to appreciate the lived experience of pharmacy preceptors, and may encourage others to act in a tactful, empathetic manner when modifying experiential learning curricula. It may enhance the quality and quantity of experiential learning placements to benefit both students and preceptors.

## **Providing Care from the Sidelines: What are Family Physicians' Continuing Education Needs and How Can These Be Addressed?**

Martin Heroux, College of Medicine, Department of Academic Family Medicine

**Purpose:** Coverage of Sports Medicine Events can be an intimidating experience for physicians. Many physicians who cover events do not work in environments where they are able to practice their emergency skills on a regular basis. This may lead to a lack of willingness to cover events despite having significant interest. In addition, it may lead to significant anxiety in providers who do cover events regularly. Although there are courses such as Advance Trauma Life Support (ATLS) which cover trauma scenarios, these courses are not sports medicine specific and focus on wide varieties of trauma. Family physicians may be reluctant to participate in intense courses that have limited applicability to their practice. A dedicated course using a variety of teaching tools such as lecture, demonstration, small group learning, and simulation may allow physicians to feel more comfortable managing emergency situations on the sidelines. The current study investigates the continuing education needs expressed by physicians, with the aim of using this information to develop ongoing learning opportunities.

**Methods:** Family physicians in Saskatchewan are invited to complete an online survey about their comfort level, experience, and training needs in sports medicine emergency situations, including: sport specific airway emergencies (e.g., airway trauma, cervical spine injury, anaphylaxis), bleeding emergencies (e.g., arterial bleeds of the upper and lower extremities), heat and cold emergencies (e.g., accurate determination of body temperature and management), management of athlete collapse (e.g., heart arrhythmias, electrolyte abnormalities), tension pneumothorax, ruptured spleen, sickle cell disease, and seizure management.

**Result:** Results of the survey will be available in early June, 2019.

**Conclusion:** The information garnered from this survey will provide the impetus for designing continuing education opportunities for family physicians to support competency in sideline sports emergency management.

## **Stewardship with a Handshake: Impact of Collaborative, Prospective Audit and Feedback Antimicrobial Stewardship Rounds in an Adult, Medical-Surgical Intensive Care Unit in Saskatoon, Saskatchewan**

Shaqil Peermohamed, College of Medicine-Medicine

Co-Author(s): Justin Kosar, Antimicrobial Stewardship Pharmacist, Saskatchewan Health Authority

**Purpose:** Approximately 30% of antimicrobial use in ICUs has been shown to be inappropriate, particularly due to prescribing therapy too broad in spectrum of activity. Prospective audit and feedback is a core strategy of antimicrobial stewardship programs (ASP) with relevance in ICUs, which represent high-acuity care environments where higher proportions of broad-spectrum antimicrobials are often prescribed. Handshake stewardship has recently emerged as a specific form of prospective audit and feedback, placing emphasis on collaboration and bi-directional feedback with de-emphasis of antimicrobial restriction and pre-authorization.

**Methods:** A quasi-experimental study was performed to evaluate the impact of handshake stewardship in an adult, medical-surgical ICU. In-person ASP rounds were performed three times per week by a pharmacist-physician team in a seventeen-bed, medical-surgical ICU, beginning in mid-November 2016. A separate fifteen-bed, medical-surgical ICU served as a control. ASP recommendations were recorded prospectively in themed categories and acceptance rates were tracked. Monthly antimicrobial utilization data, collected for both ICUs, was measured using ATC/DDD methodology during pre-implementation (November 2015 to October 2016) and post-implementation (December 2016 to November 2017) periods.

**Results:** ASP provided 270 recommendations amongst 327 patients, with an overall acceptance rate of 91.1%. The most common recommendations included duration optimization (26.3%), de-escalation of therapy (21.9%) and discontinuation of therapy (21.5%). No significant difference in overall antimicrobial usage was observed in the intervention ICU; however, a 19.6% reduction in the use of antimicrobials with broad-spectrum activity and coverage of multi-drug resistant organisms was observed ( $p=0.03$ ). Significant decreases in use of anti-pseudomonal antimicrobials (21.4%,  $p=0.04$ ) and increases in use of narrow spectrum antimicrobials (26.2%,  $p=0.01$ ) were also observed. No significant differences in antimicrobial usage were observed in the non-intervention ICU.

**Conclusion:** Implementation of handshake stewardship in an adult, medical-surgical ICU is effective in reducing use of broad-spectrum antimicrobials, likely reflecting earlier de-escalation of therapy.

## **Stigma education for medical students: a multi-site interview study**

Kylie Riou, College of Medicine-Psychiatry

Co-Author(s): Marcel D'Eon, faculty, USask; Vern Bennett, Faculty, USask; Ulrich Teucher, Faculty, USask

**Purpose:** Stigma of mental illness directly inhibits access to care for medical students and their patients. Outcomes improve in patients with stigma eradication. We wanted to explore the perspectives of senior medical students on stigma education.

**Method:** We interviewed senior medical students, seven at the College of Medicine, University of Saskatchewan and five at the John A Burns School of Medicine, University in Hawaii, about their experiences with and opinions on their mental illness stigma education. Transcripts were analyzed by at least two of the authors using semantic and latent thematic analysis and open coding. Consensus was reached through discussion.

**Results:** Most students had trouble defining stigma and most could not recall direct instruction in medical school. Mental illness stigma was found in personal, professional, and structural aspects of the health care system. Most medical students in Saskatoon identified personal or peer struggles with mental illness while in Hawaii only one of the five students did so. Often stigma was created by the words and/or behaviours of their senior staff and residents. Reflection seemed to be the most transformational learning opportunity to most students. All students advocated for experiential learning opportunities based on authentic contact with patients and positive role models along with facilitated reflection on their own biases.

**Conclusion:** Medical students need more opportunities to learn about mental illness stigma and how to avoid stigmatizing patients and peers. They identified authentic contact with patients and learning from role models as the most effective ways to prevent stigma.

## **The development of reference cards and a curriculum board to support the implementation of Competence by Design in emergency medicine**

Emily Stoneham, College of Medicine

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**Purpose:** Competence by Design (CBD) was recently implemented for Royal College Emergency Medicine (EM) residents. Transition to CBD requires residents to be familiar with Entrustable Professional Activities (EPAs) for each clinical rotation. We created practical resources to facilitate EPA completion.

**Methods:** An intervention mapping framework was used to design practical, low-cost, and aesthetically pleasing resources for residents' use including rotation- and phase-specific reference cards (which list EPAs likely to be encountered during specific rotations) and a curriculum board (which was based upon our program's curriculum map and allowed residents to organize cards by phase and view EPAs associated with clinical rotations at a glance). We surveyed all Saskatchewan Royal College EM residents using multiple choice and narrative questions regarding their utilization. The survey was hosted on SurveyMonkey and distributed after residents completed 36 weeks within the CBD program. Results were analyzed using descriptive statistics and a qualitative content analysis.

**Results** 100% (14/14) of residents completed the survey. 79% of residents agreed that the rotation-specific cards and curriculum board were helpful and 50% of residents agreed that the phase-specific cards were helpful. 64% of residents used rotation-specific cards at least once per rotation whereas only 36% used the phase-specific cards and curriculum board at least once per rotation. The resources were felt to be most helpful early on in the CBD transition and at the start of new rotations to guide learning plans.

**Conclusion:** The use of an intervention mapping framework allowed the creation of resources that facilitated this transition in our program. We hope that other programs will use these findings to develop similar resources when rolling out CBD within their programs.

## **The Experience of Clinical Mentors at Student Led Clinics: An exploration of cooperative learning**

Michael-Roy Durr, Arts and Science-Physiology and Pharmacology

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**Introduction:** Student-led clinics (SLC) are multi-service and interprofessional health clinics where students lead the provision of health services. SLCs typically service marginalized populations and are effective in enhancing the medical education of students. The potential benefit to the clinical mentors that supervise the students within SLCs has yet to be explored.

**Methods:** Interviews were conducted with clinical mentors across four Canadian SLCs: SWITCH (Saskatoon), SEARCH (Regina), IMAGINE (Toronto), and WISH (Winnipeg). Interview questions were designed by identifying key competencies based on discussions with focus groups of medical students and residents who had previous experience volunteering at SLCs as students. Eight (n=8) mentors were interviewed from the following health professions: nursing (n=4), nutrition (n=1), speech language pathology (n=1), physiotherapy (n=1), and medicine (n=1). Mentors were asked to evaluate how their volunteering at SLCs impacted their professional skills of communication, interprofessionalism, cultural competency, leadership and mentorship, clinical knowledge, and social determinants of health knowledge.

**Results:** Interview transcripts were reviewed independently by two researchers then analyzed for common themes. Preliminary results show improvements in all the aforementioned areas. As a result of their volunteering, mentors self-reported being better suited to provide culturally-competent and patient-centred health care. Mentors also self-reported being better able to build relationships with their patients, students, and professional colleagues.

**Conclusion:** Future work will involve interviewing more mentors, as well as building a survey to quantify the reported benefits. The preliminary findings lend themselves as a means for established health professionals to continue their life-long learning within the health care field.

## **The Medical Education Student Group: A novel means of increasing student support across the medical education continuum**

**Kara Tastad BSc, College of Medicine (Medical Student)**

**Co-Author(s): Madeline Parker, College of Medicine (Medical Student), Zachary Huschi BSc, College of Medicine (Medical Student), Amanda Ames BSc, College of Medicine (Medical Student)**

**Purpose:** Learners across the medical education continuum exhibit unique needs that remain unmet due to a lack of appropriate programming. High school and pre-medicine students face difficulties in acquiring accurate information pertaining to medical school admissions. In contrast, medical students receive little exposure to medical education, despite its recognition as a core aspect of academic medicine. To address the needs of learners, the Medical Education Student Group (MESG) was created in August 2018. This medical student-lead initiative has increased supports available to high school and pre-medicine students through seminars on medical school admissions and medical ethics. For medical students, MESG has organized lectures on effective teaching strategies, patient education, and careers in medical education. It has also provided medical students with opportunities to teach high school and pre-medicine students, in addition to first year medical students through Peers United in Learning and Skills Enhancement (PULSE), a clinical skills enhancement initiative.

**Methods:** The number of total and unique student attendees for each MESG event in the 2018-19 academic year was analyzed. Events where attendance was not recorded were excluded from the analysis.

**Results:** MESG held 10 unique events over the 2018-2019 academic year at the University of Saskatchewan, including: PULSE; Patient Education lecture; Careers in Medical Education lecture; Effective Teaching Strategies lecture; Learning Resources for Medical Students lecture; High School Outreach; Pre-Med information sessions; Mock OSCE; Mock MMI; and the MMI social. A minimum of 146 unique first and second year medical students attended MESG events.

**Conclusion:** These data indicate medical education is a vital aspect of the medical student experience, yet until the creation of MESG few opportunities existed. Additional research exploring high school, pre-medical, and medical student perspectives regarding the effectiveness of MESG in providing students with education support should prove particularly fruitful in future program development.

## **Evaluation of the Route of Administration of High Oral Bioavailability Antimicrobials**

**Christopher Oliver, Internal Medicine PGY2**

**Co-Authors:** Tanner Hall, Department of Medicine, USask; Justin Kosar, Department of Pharmacy, Saskatchewan Health Authority, Shaqil Peermohamed, College of Medicine, Division of Infectious Diseases, Saskatchewan Health Authority

**Purpose:** It is a common myth amongst physicians and patients alike that parenteral antimicrobials are superior to oral antimicrobials. However, antimicrobials with high oral bioavailability (HOB) have clinically equivalent oral and parenteral formulations. Both Choosing Wisely Canada and the Infectious Diseases Society of America, recommend against prescribing intravenous forms of HOB antimicrobials for patients who can reliably take and absorb oral medications. Prescribing oral formulations of HOB antimicrobials, can confer a multitude of clinical and pharmaco-economic advantages including decreased length of hospital stay, intravenous catheter related complications and healthcare costs. We sought to explore patterns of use of HOB antimicrobials.

**Methods:** Adult patients admitted to Royal University Hospital and St. Paul's Hospital medical and surgical units and receiving parenteral forms of HOB antimicrobials were retrospectively reviewed over the course of eight audits performed twice weekly in February, 2019. Standardized criteria were used to assess eligibility for a parenteral to oral switch amongst patients receiving HOB antimicrobials. Chi-square analysis was performed to assess differences between hospital site and admitting service.

**Results:** 408 HOB antimicrobials were prescribed, of which 22.3% were being administered parenterally. Of these 91 HOB antimicrobials prescribed to 68 patients, 68.1% met criteria for parenteral to oral switch. There was no significant difference in the proportion of HOB antimicrobials meeting criteria for parenteral to oral switch between Royal University Hospital and St. Paul's Hospital (63.6% versus 72.3%). A greater proportion of HOB antimicrobials meeting criteria for parenteral to oral switch was seen among patients admitted to surgical services versus medical services (73.3% versus 43.8%,  $p=0.04$ ).

**Conclusion:** There is ample opportunity for implementation of HOB antimicrobial parenteral to oral switch in both of our hospital sites, largely among patients admitted to surgical services. Effective antimicrobial stewardship strategies are needed to facilitate parenteral to oral switch of HOB antimicrobials when appropriate.