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2018 WFC/ACC EDUCATION CONFERENCE PROCEEDINGS FOR CONTRIBUTED SESSIONS

EDUCATION
RESEARCH SERVICE

CONFERENCE REPORT

Conference introduction and peer-review acknowledgements

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The World Federation of Chiropractic and the Association of Chiropractic Colleges have hosted a biennial joint education conference for ten years with this being the second time that the proceedings were published in a peer-reviewed journal. The *Journal of Chiropractic Education* was delighted to sponsor the meeting by donating the work necessary to edit the proceedings for publication and post-production indexing, thereby making these proceedings available in indexing systems searched by academics at universities worldwide, including *PubMed*, *Emerging Sources Citation Index*, *Scopus*, the *Index to Chiropractic Literature*, the *Cumulative Index to Nursing and Allied Health Literature*, the *Allied and Complementary Medicine Database*, and *MANTIS*. Brighthall Inc, managed the call for papers, submissions, and administration of the peer-review process.

The conference organizers recognized the international development of chiropractic training programs and the value of interactive formats and agreed to provide 4 different types of presentations for researchers to submit their work for peer review: platform presentation, poster presentation, innovation panels, and workshops.

The call for papers was distributed in March 2018 and submissions were due May 1, 2018. All submissions were peer reviewed within a month by 45 independent reviewers from nearly every chiropractic training program around the world, represented by reviewers from 16 different countries. The peer-review committee is commended for exemplary work performed over a very short time. The peer reviewers included: Hasan Kerem Alptekin, MD, Bahçesehir Üniversity; Fernando R.M. Azevedo, DC, Universidade Anhembi Morumbi; Richard Brown, DC, LLM, World Federation of Chiropractic; David Byfield, DC, MPhil, Welsh Institute of Chiropractic; Robert Cooperstein, MA, DC, Palmer College of Chiropractic West; Barry Draper, DC, PhD, Central Queensland University; Ana Facchinato, DC, MHS, Southern California University of Health Sciences; Ricardo Fujikawa, MD, DC, Real Centro Univeristario Escorial Maria Cristina; Rosemary Giuriato, DC, DO, Macquarie University; Dominic Giuliano, DC, Canadian Memorial Chiropractic College; Chris Good, DC, MAEd, University of Bridgeport College of Chiropractic; Bart Green, DC, MSEd, PhD, Stanford Health Care, National University of Health Sciences; Julie-Marthe Grenier, DC, Université du Québec à Trois-Rivières; Navine Haworth, DC, PhD, Victoria University; Michael Haneline, DC, MPH, International Medical University; Xiaohua He, MD, MS, Palmer College of Chiropractic Florida; Sean Herrin, DC, University of Western States; Kelly Holt, BSc, PhD, New Zealand College of Chiropractic; Adrian Hunnisett, PhD, MPhil, McTimoney College of Chiropractic; Claire Johnson, DC, MSEd, PhD, National University of Health Sciences; HanSuk Jung, DC, PhD, HanSeo University; Martha Kaeser, DC, Med, Logan University; Amilliah Kenya, DC, MS, Sherman College of Chiropractic; Charmaine Korporaal, MTech, Durban University of Technology; Arnaud Lardon, DC, PhD, Institut Franco-Européen de Chiropratique; Henrik Hein Lauridsen, DC, MSc, PhD, Syddansk Universitet Odense; Deborah Barr, MS, SCD, New York Chiropractic College; Clay McDonald, DC, MBA, JD, Logan University; John Mrozek, DC, Med, Texas Chiropractic College; Daniel Mühlemann, DC, University of Zurich; David Newell, PhD, AECC University College; Per J. Palmgren, RC, MMedEd, PhD, Karolinska Institutet; Lisa Rubin, PhD, Life University; Eric Russell, DC, Parker University; Thiana Paula Schmidt dos Santos, DC, Centro Universitario Feevale; Monica Smith, DC, PhD, Life Chiropractic College West; Christopher Smoley, DC, D'Youville College; Michael Tunning, DC, ATC, MS, Palmer College of Chiropractic; Adrian Wenban, DC, MMedSc, Barcelona College of Chiropractic; Stephney Whillier, BSc, BEd, PhD, Macquarie University; Michael Wiles, DC, MEd, MS, Keiser University; Chris Yelverton, MTech, University of Johannesburg; Kenneth Young, DC, MAppSc, Murdoch University.

About the Authors

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ABSTRACTS OF CONFERENCE PROCEEDINGS

WORLD FEDERATION OF CHIROPRACTIC/ASSOCIATION OF CHIROPRACTIC COLLEGES 2018 EDUCATION CONFERENCE

PLATFORM PRESENTATIONS

Hand hygiene in chiropractic training: when knowledge, attitudes and practices do not meet

Tobias Barnard, Atheesha Singh, Shelley Blundell, Christopher Yelverton

Proper hand hygiene has been described as an important barrier in the defense against hospital acquired infections, along with the spread of antimicrobial resistance in the bacteria that cause these infections. Research has shown that although healthcare workers understand the principles and importance of hand hygiene, they do not always practice proper hand hygiene. The aim of this pre-post intervention study was to monitor the changes in the bacterial population on the hands of chiropractic students at a Chiropractic Clinic pre and post a hand hygiene education intervention. Sixty participants completed the World Health Organization hand hygiene survey to determine their hand hygiene knowledge, attitude and practices (KAP), and had their hands sampled to quantify the bacterial population present. The bacterial population was quantified using flow cytometry and reported as total, live and dead bacteria present. The survey answers showed that the participants reported knowledge, attitudes and practices did improve after the education intervention (presentations and posters in toilets and consultation rooms). The microbiological data showed that although there was a decrease in the total bacterial population after the intervention, the portion live cells increased after the intervention. Comparing the change in microbiological data with the change in KAP answers provided (pre- and post-intervention), showed that although the participants understood the importance of proper hand hygiene practices, it was not supported by the microbiological data. The data showed that the effectiveness of hand hygiene education need to be monitored using a microbiological method to properly combat the spread of infections. (This is a conference presentation abstract and not a full work that has been published.)

The association between musculoskeletal pain and psychological stress CMCC mental health and wellness study

Lydia Brodie, Pierre Côté, Christine Mechamalil, Sheilah Hogg-Johnson, Canadian Memorial Chiropractic College; Kathy Smith, Craig Jacobs, Linda Carroll

Objective: To determine the one-week prevalence of neck pain and low back pain in this population. To determine whether neck and low back pain is correlated with psychological stress in undergraduate chiropractic students attending the Canadian Memorial Chiropractic College (CMCC). Methods: We conducted a cross-sectional study of the CMCC students during the fall semester 2017. We collected data using the CMCC Mental Health and Wellness Questionnaire, an electronic questionnaire designed for in-class administration. The questionnaire includes measures of neck and low back pain intensity (0-10 Numeric Pain Rating Scale) and psychological stress (DASS-21 scale - Depression, Anxiety and Stress Scale). The questionnaire also includes instruments to measure lifestyle factors. We measured the correlation between neck pain, low back pain and stress using Pearson's correlation. Results: We recruited 510 students, for a participation rate of 67%. The mean age of our sample was 24.6 years with 60% female. Overall, the one week prevalence of neck pain was 76.9%, 95% CI [73,81] and of low back pain 69.0%, 95% CI [65,73]. Stress was reported as normal in 63.3%, mild 14.9%, moderate 16.7%, severe 3.9% and extremely severe 1.2% over one week. We found that neck pain and stress (r=0.348) and low back pain and stress (r=0.259) were positively correlated. Conclusion: A significant number of CMCC students report experiencing neck pain, low back pain and symptoms of psychological stress. Understanding whether pain and psychological stress are associated may inform the management and prognosis of neck and back pain in chiropractic students. (This is a conference presentation abstract and not a full work that has been published.)

The effect of psychomotor skills training feedback using video enhanced observations (VEO) on VIVA outcomes

Danny Clegg, David Byfield, Alister DuRose

Psychomotor skills training is a key component of a Chiropractic education programme, and is considered an educational challenge. As well as individual proficiency issues, students often report difficulties with time-distribution of tutors, particularly when they are seeking reinforcement that they are making progress. Learning complex psychomotor skills requires time and repetition, therefore feedback is an important learning tool for students. In order to address these issues, a digital platform was sourced and adapted for the purpose of increasing student feedback through self-directed and directed mediums. VEO is a digital application which allows videos recorded by instructors and students to be uploaded from any device to a secure, dedicated server, for self-assessment and direct tutor feedback as required. VEO was introduced as part of the year 2 Chiropractic manual skills module during the 2017-18 academic year, with students voluntarily invited to participate as both part of, and an adjunct to, classroom learning. Standard setting of all VIVA examination assessment points was completed between the assessors prior to examination, and none of the assessors were aware of VEO engagement data. The initial cross-sectional study identified a significant positive correlation between the number of videos students engaged in and VIVA 1 performance (r=0.273, p=0.038). Follow-up analysis included performance for VIVA 1 and VIVA 2. Significant positive correlation was again identified between the number of videos students engaged in with both VIVA 2 (r=0.272, p=0.039), and overall VIVA outcomes (r=0.350, p=0.007). Further significant positive correlation was identified between overall VIVA outcomes and total number of videos uploaded directly by students for adjunctive feedback (r=0.340, p=0.009). This study indicates that employing VEO enhances manipulative psychomotor skill support and acquisition. (This is a conference presentation abstract and not a full work that has been published.)

The association between substance use and psychological distress in students enrolled at CMCC

David Côté, Kathy Smith, Pierre Côté

Objective: To measure the one-week prevalence of moderate to extremely severe psychological distress (depression, anxiety and stress) and three-month prevalence of substance use (alcohol, tobacco, cannabis, amphetamines and hallucinogens) in chiropractic students enrolled at the Canadian Memorial Chiropractic College (CMCC). We also measured the association between psychological distress and substance use. Methods: We conducted the CMCC Mental Health and Wellness Cross-sectional Study in the Fall of 2017. Enrolled students at CMCC were eligible for participation. We measured depression, anxiety and stress using the Depression, Anxiety, Stress Scales-21 and substance using the WHO ASSIST questionnaire. We report the prevalence of psychological distress and substance use. We used multivariable logistic regression to measure the association between psychological distress and substance use. Results: The participation rate was 67% (510/766). The mean age was 24.6 years, and 60% were females. The one-week prevalence of moderate to extremely severe symptoms was 19.0% for depression, 32.6% for anxiety and 21.8% for stress. In the past three months, 91.0% reported using alcohol, 33.1% used cannabis, 18.0 % used tobacco, 5.1% used amphetamines and 4.5% used hallucinogens. The associations between substance use and mental health outcomes will be presented at the conference. Conclusions: A significant proportion

of CMCC students report moderate to extremely severe symptoms of depression anxiety, stress. We fond that the consumption of alcohol, cannabis, and tobacco is high. Understanding the prevalence of psychological distress and substance use in chiropractic students is important for educators because they impact academic performance and attainment of future career goals. (This is a conference presentation abstract and not a full work that has been published.)

Deconstructing the health encounter: the importance of context

Ian Coulter, Gery Ryan, Lea Xenakis, Lisa Kraus, Lara Hilton

In deconstructing the placebo scholars have elevated the importance of the context of the health encounter recognizing that the encounter may not simply be a non-specific effect. This study developed a rapid ethnographic observation method to study the context of the encounter. What kinds of contextual factors are patients exposed to during chiropractic encounters; how do you measure such contextual factors reliably via observation and/or patient and provider recall; how do you assess the degree to which contextual factors might vary within and across practice sites, providers, and individual patients. We defined healthcare encounters as what patients experience between when they arrive at a practice site to when they exit the building. Any given encounter can be described along 5 key logical dimensions: (1) where patients are (space), (2) with whom they interact (social), (3) what is communicated between them (communication), (4) what patients do or what is done to them (behavior), and (5) for how long and in what order 1-4 occur (time). This study was conducted in three phases. In Phase 1, we conducted focus groups with chiropractic patients to delineate these features of the health encounter thought to be important to patients. In Phase 2, we conducted a pilot rapid ethnographic observation study of a single chiropractic clinic to determine how to measure the elements of the encounter identified by the patient focus groups. In Phase 3, we conducted a national study in three states using a representative sample in each state. (This is a conference presentation abstract and not a full work that has been published.)

The challenge of determining appropriate care in the era of patient-centered care

Ian Douglass Coulter, Patricia Herman

Objective: To expand the RAND/UCLA appropriateness of care methodology to include patient preferences and resource utilization, and the impact of care appropriateness on patient outcomes. Data Sources/Study Setting Primary data from expert panels, focus groups, chiropractors, chiropractic patients with chronic low back pain (CLBP) and chronic cervical pain (CCP), and from internet "workers" via crowdsourcing. Study setting is a cluster sample of 125 chiropractic clinics from six US regions. Study Design This multicomponent methods study includes analysis of longitudinal data on patient outcomes, preferences, CLBP and CCP symptoms and healthcare utilization. Data Collection/Extraction Methods: Data were collected bi-weekly on 2025 patients for 3 months via online surveys that included both new and legacy measures, including PROMIS and CAHPS. Principle Findings: Appropriateness panels generated ratings for 450 CLBP and 180 CCP indications which were then applied to patient charts. Data was collected from 2025 patients and from 3000 patient files. Conclusions: Patient-centered care is a significant policy initiative but translating it into policy that has been clinician and research-expert based, poses significant methodological issues. Nonetheless, we make the case that patient preferences, self-reported outcomes, and financial burden should be considered in the evaluation of the appropriateness of healthcare. (This is a conference presentation abstract and not a full work that has been published.)

Promoting the use of a self-management strategy among novice chiropractors treating individuals with spine pain

Owis Eilayyan, Aliki Thomas, Sara Ahmed, Anthony Tibbles, Craig Jacobs, Fadi Alzoubi, Andre Bussieres

Introduction: Despite guidelines recommending clinicians use Self-Management Support (SMS), uptake is suboptimal. Previously identified barriers to using SMS among chiropractors, interns and patients informed the design of a knowledge translation (KT) intervention for use in chiropractic teaching clinics. Objective: To estimate the feasibility and potential effectiveness of a KT intervention to promote the use of SMS among chiropractors, interns and patients with spine pain compared to control. Methods: Pilot clinical trial across 4 outpatient-teaching clinics. Twenty Patient Management Teams (PMTs), each composed of 6-9 interns supervised by a clinician, were allocated to either the intervention (training workshop, webinar, e-educational module, and opinion leader) or wait-list. We assessed clinicians' and interns' SMS perceived importance, skills and confidence. Results: Sixteen (84%) clinicians and 39 (29%) interns agreed to participate. Clinicians (n=7 and n=9) and interns (n=17 and n=22) were allocated to the KT intervention and control groups respectively. Nearly all clinicians completed baseline and first follow-up surveys. 16 and 15 interns in the intervention and control group completed the baseline surveys respectively, while 11 and 10 interns completed second follow-up surveys. Preliminary estimates showed that intervention group clinicians had greater improvements in SMS perceived importance (mean change 0.24vs-0.02), skills (1.1vs0.43), and confidence (0.51vs0.35) compared to controls. Interns in both groups had mixed results. Conclusion: Preliminary results of this ongoing trial suggest that conducting a larger implementation trial in this setting is feasible. Theory-based tailored KT interventions may increase the likelihood of effective uptake and application of guideline recommendations within academic teaching institutions. (This is a conference presentation abstract and not a full work that has been published.)

Assessing attitudes of patient-centered care among students across chiropractic colleges

Karin Hammerich, Kent Stuber, Anser Abbas, Martin Harris, Sheilah Hogg-Johnson, Henrik Hein Lauridsen,Nadege Lemeunier, Michele Maiers

Background: A patient-centered approach is desirable in patient care. Attitudes of students towards patient-centred care in other health professions has been assessed; however, what chiropractic student attitudes are towards patient-centered care and variations between programs is unknown. Objective: To assess student attitudes towards patient-centred care among selected chiropractic programs worldwide. Methods: Students from seven chiropractic educational programs completed an online survey consisting of demographics and the Patient-Practitioner Orientation Scale (PPOS). PPOS assesses patient-centred attitudes towards the doctor-patient relationship. The PPOS provides scores between 1 and 6, (lower scores suggesting a more doctor-centred approach; higher scores, a more patient-centred approach). Results were analyzed descriptively and inferentially for overall, sharing and caring subscales. A general linear regression model identified factors associated with PPOS scores. Results: There were 1858 respondents (50.8% response rate). Student average age was 24.7 (range=17-58) years and 56.2% were female. The average overall PPOS score was 4.18 (SD=0.48), while the average sharing and caring subscale scores were 3.89 (SD=0.64) and 4.48 (SD=0.52), respectively. Gender, age, and program contributed small but significant differences in all PPOS scores. Year/semester of study within program typically did not significantly affect scores, neither did history of previous chiropractic care or having family members who are health professionals. Conclusion: We found small but significantly different PPOS scores between programs. Average scores tended to trend slightly lower than those reported in other health professions. Research exploring other factors, including curricular content and student beliefs, may help explain the observed student patient-centred attitudes. (This is a conference presentation abstract and not a full work that has been published.)

In search of a model for tests with polytomous items violating local independence

Igor Himelfarb, Bruce Shotts

The assumption of local independence (LID) is violated when several items refer to the same vignette or items are related in other ways. The NBCE Written Clinical Competency Exam (Part III) consists of two sections, with a total of 110 multiple-choice questions and 10 case vignettes. The nature of the vignette items violates the assumption of LID for items nested within a vignette. We consider these items testlets. Due to the close relevance of within-testlet items, the LID assumption is violated, ignoring what often results in item parameter

estimation bias (Wainer, Sheehan, and Wang, 2000) and overestimation of measurement reliability. (Sireci, Thissen, and Wainer, 1991) The objective of this paper is to propose a model for polytomously-scored items with violation of LID. The model is based on the Testlet Response Theory (TRT) proposed by Wainer, Bradlow, and Wang (2007). The approach focuses on modeling LID caused by testlets; thus, allowing the estimation of the tests at item-level. In this paper, we propose a two-level unidimensional TRT estimation algorithm which takes advantage of their approach while easing the computational difficulties. We take several steps to investigate whether our model provides better estimates than models currently utilized for responses violating LID. We utilized Markov Chain Monte Carlo (MCMC) simulation to generate responses to a hypothetical test and fit the models to the synthetic data. Next, we test our model using the real Part III responses and compare the obtained IRT parameter estimates and ability levels to the generated ones. (This is a conference presentation abstract and not a full work that has been published.)

Flipped classroom for academic subjects in chiropractic education: an initial pilot exercise

Adrian Hunnisett, Christina Cunliffe

Objectives: The aim of this study was to explore student engagement, preferences and perceptions in the delivery of early academic subjects, comparing traditional didactic delivery with the flipped classroom model. Methods: Following relevant ethical approvals, students (n=26) were divided into 2 convenience groups based on course pathway. During 2 biomedical science sessions, one group followed a standard classroom delivery (ST) model whilst the second group followed a flipped classroom (FC) model, covering a topic at home prior to a class tutorial session. Knowledge acquisition was assessed by a collective MCQ at the end of the session (usual practice) and students completed a small survey exploring opinions on the teaching model used. At the second session, the groups were reversed. Results: No significant difference was demonstrated in knowledge acquisition between the 2 groups (p=0.85). Student satisfaction was slightly higher in the FC group (p=0.062), although not quite reaching statistical significance. The reason cited for increased satisfaction was exploration of relevant clinically based case studies to apply the knowledge. Also, motivation to attend sessions was increased in the FC group. Conclusions: This small scale pilot study suggests the FC approach has no benefit over ST in terms of knowledge acquisition. However, there do appear to be some benefits for the student experience that may improve attendance rates. Further research over longer periods and with larger numbers is warranted. (This is a conference presentation abstract and not a full work that has been published.)

Health-related quality of life (HRQOL) domains in an integrated, community-based clinic for individuals with disabilities

Kelley Humphries, David Parish

Introduction: Outcome assessments developed for individuals with disabilities are based on assessments for the general population. Presumptions of applicability and irrelevant questions result in unreliable and invalid data. The PROMIS Global Health assessment (PROMIS) is widely accepted and validated for the general population but there are no large studies that that focus on its use for individuals with disabilities in a community-based clinic. PURPOSE To identify and describe how Logan Human Performance Center (HPC) at Paraquad patients respond to each domain of the assessment throughout individualized treatment plans. Introduce research to identify trends for this population in this unique setting. Methods: This study reviewed 40 patient records from HPC. Cross-sectional data analysis looked at the correlation between PROMIS scores and basic demographic information. Results: Individuals who presented with a history of strokes reported the most improvement in their scores from baseline with the most substantial improvement in their raw score for physical health. Fatigue showed the greatest improvement from baseline in all groups (SCI, stroke, MS, surgical impairments, TBI, VI, and other). Patients over the age of 70 showed the most overall improvement in scores across all domains. Raw physical and pain scores showed the greatest global improvement among all age groups. The largest improvement in scores were raw physical in the 60-69 age group. Males showed the most improvement in fatigue scores. Females showed the most improvement in physical health scores. Conclusion: This pilot study, with inherent limitations, helps support the need for quality research in this area. If an outcome assessment like PROMIS can be generalized to accurately measure overall health and well-being in this population, we can better understand what methods across various fields of health care are most effective in promoting health and wellness for individuals with disabilities. (This is a conference presentation abstract and not a full work that has been published.)

Setting a passing standard for OSCE assessments: the bookmark method

John Hyland, Igor Himelfarb

Objective: OSCEs (Objective Structured Clinical Examinations) are commonly used in the education of healthcare professionals to assess their performance during patient encounters. During high-stakes examinations for regulatory purposes, trained "patients" and examiner checklists are supplemented by selected response questions to assess clinical decision-making and provide standardization. This complexity makes the usual methods of setting a passing standard (the "cut score") and equating the results quite unwieldy. The U.S. National Board of Chiropractic Examiners (NBCE) sought to update its Part IV practical examination using Item Response Theory (IRT) and a novel standard-setting approach (Bookmark method). Methods: The Part IV examination item responses were calibrated using General Partial Credit IRT models. The models were fitted within domains of the test. All encounter stations and selected response questions from each of the three domains (Diagnostic Imaging, Case Management, and Chiropractic Technique) were arranged in ascending order of difficulty in printed booklets. A regionally representative judging committee comprising 18 chiropractic clinical faculty members was convened. Following instructions and discussion, members worked individually to identify a cut point, beyond which the stations became too difficult to expect a borderline test-taker to proceed successfully. Results: The three domains each required 3 rounds of judgments to come to an acceptable consensus. The entire process was completed in approximately 7 hours. Conclusion: This approach to standard setting and equating proved to be considerably less time-consuming and much easier on the judges than the previous method, which used Classical Test Theory (CTT) and a modified Angoff determination. (This is a conference presentation abstract and not a full work that has been published.)

Cultivating collaborative teams using an interprofessional collaboration competency framework in performance appraisals

Deborah Kopansky-Giles, Lindsay Beavers, Norman Dewhurst, Lori Whelan, Fok-Han Leung, Ashley Skiffington, Beck McNeil

Background: In today's healthcare environment health professionals need to work effectively in teams to improve quality of care. At St. Michael's Hospital, an interprofessional collaboration competency framework (IPCCF) was developed to improve individual collaborative competencies and support team-based care. Knowledge transfer about the IPCCF occurred through multiple strategies to facilitate competency awareness and attainment amongst clinical staff. Methods: The IPCCF was embedded in the employee performance appraisal (PA) process and due for their PA and their managers were included. Additional education consisted of an IPCCF toolkit and information on the process for staff. Both groups completed modified PA forms and a PA meeting and a post-PA survey was sent to staff. Managers completed a key informant interview, analyzed for themes. Results: An ICU and two medical/surgical units were evaluated. 46 staff participated, 38 (82%) completed the survey. All reported they understood the collaborator competencies and that completing the process with the aid of the toolkit was 'easy.' Staff self-identified moderate to high confidence in all 6 IPCCF domains. Managers had a good understanding of the IPC competencies and recognized the importance of embedding these in the PA. Manager interviews identified two additional themes: variation in, and the need for, institutional support for the new PA process. Conclusions: Staff successfully completed the modified PA process demonstrating knowledge about the IPCCF concepts and had high self-rated confidence in the IPCCF domains. Managers highlighted the

importance of the practice context and of institutional support for the PA process as essential elements in the hospital-wide roll-out of this initiative. (This is a conference presentation abstract and not a full work that has been published.)

How to teach diagnostic tests when there is not enough evidence on their utility?

Nadège Lemeunier, Hainan Yu, Pierre Côté

Objective: Chiropractic students invest their time and effort in physical examination to gain diagnostic skills. However, most of these tests have poor or questionable reliability or validity. We aim to discuss the implications of teaching these tests to chiropractic students and offer a pedagogical solution to this problem. Method: We conducted 20 systematic reviews on the reliability and validity of diagnostic tests used to assess neck and low back pain patients. We synthesize the evidence using best-evidence synthesis. A multidisciplinary panel of 18 clinical and scientific experts used the evidence to develop recommendations about the use of these tests. Only, tests and tools with adequate validity and reliability informed the development of recommendations. Results: Most clinical tests used by chiropractors to assess neck and low back pain patients have poor validity and reliability. Yet, these tests are taught in chiropractic schools. We recommend that educators and clinicians focus on teaching the use of test that have adequate reliability and validity. Educators and clinicians need to understand the impact of diagnostic misclassification and its impact on patient care. Conclusion: Our results will help to standardize the diagnostic pedagogic approach to teach diagnostic tests used for patients with neck and low back pain. (This is a conference presentation abstract and not a full work that has been published.)

PIE for CIH educators: a conference on teaching and integrating evidence-informed practice (eip) into curricula

Cynthia R. Long, John S. Stites, Ron LeFebvre, Michele J. Maiers, Renee M. DeVries, Dana Madigan, Joshua Z. Goldenberg, Patricia M. Casello-Maddox

Purpose: Clinicians must effectively practice evidence-informed clinical decision-making in environments increasingly demanding interdisciplinary cooperation with an emphasis on patient outcomes. Yet, the skills needed for EIP have not historically been part of curricula at CIH academic institutions. This was the 3rd biennial conference (July 2017) aimed at training CIH faculty in EIP principles and to promote exchange of teaching methods and curricula. Methods: The format included interactive workshops, lectures and networking opportunities to foster interdisciplinary collaboration. Plenary sessions covered emerging interdisciplinary EIP topics. The teaching track focused on facilitated small-group sessions where each participant prepared and delivered an EIP teaching module. The administrative/curricular development track offered large- and small-group discussions with case studies aimed at building, maintaining, and measuring outcomes in support of integrating EIP institution-wide. A post-conference paper survey, and 2- and 6-month web-surveys were administered. Results: There were 112 attendees including plenary speakers, program faculty, small group facilitators and participants. Of the 64 participants in the teaching track and 34 in the administrative track, 74% were chiropractic educators and administrators. Survey response rates ranged from 31-43%. All responders rated the overall quality of PIE as good or outstanding. They reported PIE influenced higher confidence with EIP, provided strategies for teaching EIP, promoted EIP integration and curricular change, and provided valuable materials and resources. Conclusion: PIE provided a supportive environment for participants to enhance their skills and develop networks to empower them to integrate EIP into their curricula toward preparing graduates to consider EIP as integral to successful practice. (This is a conference presentation abstract and not a full work that has been published.)

Impact of study time and student confidence on the use of a cluster orthopedic tool

Davis McAlister, Kristi Carbonelli, Katherine Pohlman, Stephen Paterno

Objective: This research project assessed whether supervising faculty, students own, or peer group study time impacted scores of pre-post-test utilizing a newly developed cluster orthopedic tool, as well as students' self-reported diagnosing confidence before and after training. Methods: Orthopedic clusters were developed using best practice, evidence-based to guide students more quickly to appropriate orthopedic examinations by supervising faculty clinicians. All new clinic students (n=95) received 60 minutes of standardized instruction for the use of the tool. Each supervising clinician provided follow-up training at their own discretion. Students were given a semi-structured diagnosis exam prior to the standardized training and 5-weeks post training, which assessed differential diagnoses, orthopedic examinations, and final diagnosis for 2 clinical cases. Students were asked about their confidence in orthopedic examination clusters before, after, and 3-weeks post-test, as well as how much study time was done by their supervising clinician, on their own, and with peer groups. Results: Response rate was 85% (81/95). Pre-post test found improved orthopedic examinations ($p<0.05$) for both cases and improved final diagnosis for 1 case. Similar time was spent studying on their own, with slightly less time spent studying in peer groups. Statistically significant impact was found with amount of time the supervising faculty spent reviewing the tool and student's self-reported increased confidence ($p<0.05$). Conclusion: While more investigation is needed, this study demonstrates that the use of an evidence-based cluster orthopedic tool has the potential to increase students understanding and confidence in the use of orthopedic examinations to determine diagnosis. (This is a conference presentation abstract and not a full work that has been published.)

The prevalence of anxiety, stress and depressive symptomology in chiropractic undergraduate students at the Canadian Memorial Chiropractic College

Christine Meckamalil, Pierre Côté, Lydia Brodie, Sheilah Hogg-Johnson, Kathy Smith, Craig Jacobs, Linda Carroll

Objectives: To determine the one-week period prevalence of moderate to extreme anxiety, stress and depressive symptomatology in CMCC undergraduate students and if it varies across gender and year of study. Methods: We conducted a cross-sectional study of CMCC undergraduate students in the fall of 2017. All 766 students were eligible to participate. The questionnaire included valid and reliable instruments such as the DASS-21, which was used to measure anxiety, stress and depressive symptomatology. The feasibility of the survey was established in May 2017. We computed the one-week prevalence of moderate to extreme anxiety, stress and depressive symptomatology with 95% confidence intervals. Chi-square statistics were used to compare the prevalence across gender and year of study. Results: Our participation rate was 67% (510/766). The one-week prevalence of moderate to extreme symptomatology was 19% (95% CI: 12,26) for depression, 32.6% (95% CI: 26,39) for anxiety and 21.8% (95% CI: 15,29) for stress. The prevalence varied significantly by gender for moderate to extreme stress (p=0.019) with 25% for females and 16.3% for males. The prevalence also varied significantly by year of study for moderate to extreme depressive (p= 0.02) and anxiety (p=0.05) symptomatology, with second year students reporting higher rates at 25% and 41% respectively. Conclusions: CMCC undergraduate students reported high rates of anxiety, stress and depressive symptomatology, similar to students in other health care programs. This valuable insight can be used to develop strategies for prevention and coping to better support students during their chiropractic education. (This is a conference presentation abstract and not a full work that has been published.)

A student-led interprofessional breastfeeding clinic: a novel approach to enhancing clinical education

Amy Miller, Edwin van Teijlingen, Sue Way, Alison Taylor

Breastfeeding is a public health priority worldwide. In order to provide breastfeeding support to mother-infant dyads, and to provide interprofessional clinical education and experience for students, Bournemouth University and AECC University College created a student-led interprofessional breastfeeding clinic. This clinic is facilitated by midwifery students and chiropractic interns, and overseen by a qualified midwife and chiropractor. Each profession provides a different skill set and collaborate to provide breastfeeding support in this setting. Interprofessional education is supported by the World Health Organization as a means to develop a collaborative

practice ready workforce, and student-led clinics are one way to provide interprofessional education. As part of a PhD study, focus groups are being conducted with students who provide care in this clinic. The objective is to explore a student-led interprofessional breastfeeding clinic as a means of developing students' clinical knowledge and skills, and providing interprofessional education. Focus groups will initially be intraprofessional, midwifery or chiropractic, followed by interprofessional, midwifery and chiropractic. Data collection has begun, and will be completed in June 2018. Framework analysis will be used to provide within-group and between-group comparison. Early data suggests that students value the dedicated nature of this clinic, where breastfeeding is the main focus, and they are able to concentrate on both mother and baby as a dyad. Students feel more confident in their clinical knowledge and skills. They learn from observing and interacting with students and staff of another profession, and would like more time outside of the clinic dedicated to interprofessional student-led learning. (This is a conference presentation abstract and not a full work that has been published.)

Evaluating evidence selection in clinical education: adding a PICO format assessment tool to case presentations

John Mrozek, Stephanie Johnson, Cheryl Hawk, Claire Noll, Michael Sheppard, Shari Wynd, Larry Wyatt

Objective: A review of clinical education assessment data indicated that rating of student performance on Council on Chiropractic Education (CCE) meta-competency 6 (MC6) Information and Technology Literacy, including the selection of evidence, was lower relative to other CCE meta-competencies. The PICO (Presentation, Information, Comparison, Outcome) format approach has been shown to yield a higher percentage of relevant citations when searching databases. A PICO format rubric was developed and added to existing SNAPPS (Summarize, Narrow, Analyze, Probe, Plan, Select) and CBD (Case Based Discussion) clinical education assessment tools during the final 4 terms of a 10-trimester program. Methods: Data from 8 consecutive trimesters prior to PICO inclusion and 3 consecutive trimesters following PICO inclusion were studied for rating frequency, MC6 performance rating scores and the number of independent raters before and after PICO inclusion. Results: Pre-PICO inclusion MC6 ratings captured during global assessments were evaluated on 68.87 ± 2.5 occasions per trimester ($n = 72$ students). Following the addition of the PICO rubric to SNAPPS and CBD, the number of MC6 assessments increased significantly ($p=0.0009$) to 424.33 ± 15.5 occasions per trimester ($n = 81$ students). There was an average of 4 independent raters per trimester prior to PICO inclusion and 8 following inclusion. The MC6 mean performance rating score was 3.28 ± 0.5 pre-PICO inclusion and 3.1 ± 0.1 ($p=0.11$) after PICO inclusion. Conclusion: Adding a PICO format tool to clinical education assessment significantly increased rating frequency resulting in a non-significant decrease in the MC6 performance score. Further study is needed regarding the PICO effect on evidence selection. (This is a conference presentation abstract and not a full work that has been published.)

Outcomes of curriculum mapping to graduate attributes, professional meta-competencies and bloom's taxonomy at Palmer West

Brian Nook

The Council on Chiropractic Education (CCE) released their new CCE Accreditation Standards: Principles, Processes & Requirements for Accreditation affective January 2018. These standards included the new CCE Clinical Education Meta-Competencies. It is the responsibility of each Chiropractic institution to provide evidence of meeting these requirements. This is consistent with other Accrediting bodies globally. In preparation to provide evidence of compliance, Palmer College of Chiropractic implemented a curriculum review to align the curriculum to the new standards. This included a mapping of each course's learning outcomes to Bloom's taxonomy, the institutes abilities (Palmer Abilities) and the new meta-competencies of CCE. Objective: to report on the process and results of the curriculum review of Palmer College of Chiropractic -West and across Palmer institution to Bloom's taxonomy, Palmer Abilities and CCE meta-competencies. Methods: each course coordinator reviewed their course learning outcomes to update to Bloom's taxonomy, Palmer abilities and CCE meta-competencies. These new learning outcomes were then mapped and analysed for depth and breath of curriculum structure to the meta-competencies. Cross institutional analysis was reviewed as a benchmarking process. Results: Comparison of the mapping of Bloom's taxonomy, Palmer Abilities and CCE meta-competencies demonstrate evidence of the depth and breath of curriculum development of the Palmer West curriculum. Conclusion: the experience of this mapping process should be helpful for other institutions in preparation for their mapping process. This study and findings provide a benchmark on process and areas of analysis for comparison. A call for a benchmarking project with other institutions is offered. (This is a conference presentation abstract and not a full work that has been published.)

Four month skill retention using force sensing feedback after simulated, prone, thoracic adjustments

Paul J. Osterbauer, Steven Lester, David J. Starmer

Objective. Previous work reported improvement in student skills following a two hour force feedback training session for prone thoracic spine manipulations. The objective of this work was to determine if students were able to retain their skills at a longer-term follow-up based on their progressive academic schedule. Methods. Pre-session, post-session and four month follow-up measurements were collected with Force Sensing Table Technology (FSTT®) while asking a cohort of trimester two students to perform three light, typical and heavy, force prone thoracic manipulations on a Human Analogue Manikin. Between pre and post data collection, a two hour educational lab was conducted for the students to take turns practicing selected tasks using the FSTT®. Focus was on determining preload and performing a thrust as fast as they could from that position. Coaching was targeted at decreasing variability in performance of preload within a defined target corridor. Results. Data were collected on 36 students. Comparing follow up to post session performance, students were able to retain their skills and hit the targets at least as often 72.2%, 69.4%, and 88.9% of the time with 95% CI [57.6, 86.9], [54.4, 84.5], and [78.6, 99.2] for the light, typical, and maximal thrust efforts respectively. Conclusion. The results suggest that providing, a brief, intervention using FSTT® feedback can decrease variability in students' ability to thrust from a defined preload target over both short and long term periods. Work is ongoing to determine the optimal schedule for learning activities/drills after an initial coaching session. (This is a conference presentation abstract and not a full work that has been published.)

Attitudes and behaviors of chiropractic students toward treatment table disinfection: results of initial survey

Jana Perdijk, Christopher Yelverton, Tobias Barnard, Clarissa Van Der Loo

The presence of pathogenic microbes on treatment tables is of concern when attempting infection control in chiropractic treatment rooms. Efforts to keep treatment surfaces clean and even sterile in many cases are common practice in hospitals but have only recently been a topic of research in chiropractic. The aim of this study was to survey the attitudes and current practices of the UJ chiropractic students regarding treatment table disinfecting measures. A 12-question anonymous survey was utilized in the study, and the responses were analyzed using SPSS 23.0. Ninety-five percent of the students concurred that the chiropractic treatment tables might serve as a fomite and 93% acknowledged the importance of disinfecting the treatment. A minority (19%) reported disinfecting their treatment tables between patients. And even though 95% of the students agreed that disinfection should not only occur when a patient has a visible infection, 26% still indicated that they only disinfect their tables weekly or when deemed necessary. More than half (55%) of the students reported that they have a routine cleaning protocol, but not a routine disinfection protocol (52%). Mechanisms, however, were not in place to adequately provide for table disinfection on a routine basis. Face paper changing practices are common practice and routine, as all the chiropractic students reported replacing the face paper on their treatment tables after every patient. The results suggest that the chiropractic practice of infection control measures may create a reservoir for potentially pathogenic microbes, reinforcing the need for

standardized table disinfecting protocols. (This is a conference presentation abstract and not a full work that has been published.)

Utility and acceptance of repetitive use of multi-source feedback by chiropractic interns

Pablo Perez de la Ossa, David Ranz, Rod Pendarvis, Elina Pulikkinen, Adrian Wenban

Background: Previous studies using multisource feedback system indicated that Health-care interns thought this system was useful, recommendable to peers and worthy to be used regularly. objectives: To determine if chiropractic interns find the MSF useful if used repeatedly and to determine if a regular use of MSF may help them to improve their skills. Methods: A 1st round of MSF was run during January. Interns were asked to obtain feedback from Clinic supervisors, Chiropractic assistants, peers, patients and complete a self-assessment, all by means of a 20 items questionnaire. They were send regular reminders. After two weeks they were asked to complete an 8 item questionnaire to evaluate the MSF system. Agreement was calculated as the percentage of "Completely agree" or "Agree" responses. The same procedure was repeated 3 months later, using the same questionnaires and frequency of reminders. RESULTS: The response rate dropped from 70% to 46% in the second round. Interns' agreement dropped significantly about recommending (62% to 36%), importance (55 to 39%) or usefulness if used repeatedly (67 to 39%). Professional skills improvement dropped also (37 to 24%). Similar result were obtained when cohorts or gender were compared. CONCLUSIONS: Intensive and repetitive use of MSF is poorly accepted by chiropractic interns. Timing during academic year, saturation of different questionnaires may have had an impact on the low acceptance. Interns did not benefit from any improvement from this repetitive use and, although useful and accepted, MSF should be used with caution. (This is a conference presentation abstract and not a full work that has been published.)

Grit and chiropractic students' academic performance: a cross-sectional study

Elina Pulkkinen, Pablo Martínez, Pablo Pérez de la Ossa

Background: Previous investigations have reported that grittier students perform better academically. Grit has been defined as "perseverance and passion for long-term goals," which involves long-term stamina to work towards goals and the ability to maintain effort when faced with setbacks. Objectives: To measure chiropractic students' grittiness and to determine whether there is a correlation between grit and academic performance. Methods: An 8-item Grit Scale electronic questionnaire was distributed to students in years 2 to 5 and first-year graduates of the Barcelona College of Chiropractic. They were asked to self-report their final mark from the previous academic year and the total number of resit examinations they had taken during their studies. A two-tailed t-test was used to determine differences by gender, by previous studies or by resitting any exam. One-way ANOVA was used to determine differences among cohorts. We measured the association between final mark and grit score by correlation analysis. Results: The response rate for this survey was 87% (110/126). The mean grit score was 3.44 ± 0.60. The students who had never failed an exam had statistically significant higher grit scores than those who had failed one or more exams ($p<0.001$). There was a positive correlation between academic performance and the grit score ($r=0.440$). No differences were found by academic year, gender or previous studies. Conclusion: The grittier students performed better academically than, the less gritty students. The students with a higher grit score had a better final mark, and they were less likely to fail exams. (This is a conference presentation abstract and not a full work that has been published.)

Does the use of formative peer-assessment through Facebook influence summative marks in an undergraduate practical unit? a pilot study

Jacqueline Rix

Objectives: In healthcare education, students are required to learn a number of psychomotor-rich skills, each with a theoretical and cognitive component. This study aims to investigate Facebook (FB) as a platform for peer-feedback and discussion. Methods: Students enrolled onto year one of the MChiro at AECC UC were eligible to volunteer. 10% of the cohort were enrolled onto the study. An invitation to the private Clinical Management One FB Group was sent. Participants were encouraged to post videos of themselves performing skills to gain feedback from their peers, as well as post research articles, pictures or questions for discussion. In semester one, the researcher was an equal partner in FB participation. In semester two, the researcher withdrew from participating, but remained an observer. Questionnaires and interviews were done at the end of each semester. Results: In semester 1, 55% of participants posted videos; in semester 2, 45% of participants posted videos. All students received feedback. 100% of students found the Facebook page useful. Participants obtained better summative results in reflective essay writing ($p=0.021$), however were equal with the remaining cohort in the theory assessment ($p=0.866$). Participants outperformed the remaining cohort in the semester one and two practical assessment, but not significantly ($P=0.204$ and $p=0.904$ respectively). Conclusion: Students did use the FB Group and found it useful, however participation was low. Students did not use the platform as intended by the researcher, however students reported that they did learn from the FB group and would use it again in future. (This is a conference presentation abstract and not a full work that has been published.)

Stress and motivation as predictors of performance in a single cohort of undergraduate chiropractic students

Jacqueline Rix, Philip Dewhurst, Caroline Cooke, David Newell

Objectives: Research suggests non-academic qualities, such as motivation and stress, are strongly linked to academic performance. This study aims to examine student's stress and motivation with respect to summative assessment results. Methods: Students enrolled onto year one of the MChiro at AECC UC were eligible to volunteer. Questionnaire data was collected at the beginning of the academic year; end of semester one and end of semester two. Semi-structured interviews were conducted at the end of semester one and end of semester two. Students were asked to estimate their stress levels and motivation to study. These were compared to summative results. Possible causes of stress and motivation formed part of the questionnaire, these were further explored in interviews. Results: Stress at the beginning of the year was minimal. When compared to end of semester one, there was an increase in stress ($p=0.012$). When semester one was compared to semester two, there was a significant increase ($p=0.001$). Students were very motivated at the beginning of the year, this remained so for the end of semester one ($p=0.257$). The closer to the end of year assessment (end of semester two), students were significantly less motivated ($p=0.007$). End of year motivation correlated with students failing one or more units ($p=0.056$), however there was no relationship between stress and summative results. Conclusion: Before starting university, students were motivated with minimal stress. Towards the end of the academic year, students stress increased while motivation decreased. Low motivation was linked to poor assessment performance. (This is a conference presentation abstract and not a full work that has been published.)

Chiropractic preceptorships: Transitioning students from the teaching clinic to the work force

Gregory Snow, Dustin Derby, Leslie Beaudry

Introduction: Preceptorships play an important role in clinical education by providing practiced-based learning to further develop clinical and professional competency. Many allied health professions utilize preceptorships to effectively transition students to the work environment. Chiropractic has a long history of preceptorships, but scant evidence to document its educational contribution to students' professional development. This study is the first to present chiropractic students perceived clinical and business exposures during their preceptorship. Methods: A retrospective analysis of aggregate data from 2014-2016 (33 iterations) of a secured, electronic survey of terminal term students participating in a pre-graduate preceptorship was conducted. Results: Of 1730 graduates, 1,300 (75%) participated in a preceptorship and 881 (68%) responded to the survey. On average, respondents overwhelmingly agreed (95%) that preceptors provided a quality educational experience and were effective mentors in their educational process. Other important findings included: 74% of students expect to work with their preceptor after graduation; 87% agreed that their mentor used evidenced-based clinical practice; and

24% agreed they interacted with other health care providers. Respondents also agreed that they were exposed to: complex musculoskeletal conditions (77%), organ systems cases (70%), psychosocial issues (58%) and comorbidities (57%). Students also learned about business finances (68%), human resources (55%) and insurance processes (64%). Discussion and Conclusion: An overwhelming majority of participating students found their preceptor to be an effective mentor and expected to work with that individual after graduation. The program exposed students to common and complex conditions seen in chiropractic practice. Preceptorships also exposed the most students to private practice business practices.

Virtual microscopy for the study of histology in a chiropractic program: is it the future?

Guy Sovak, David Wickes

Histology laboratories at Canadian Memorial Chiropractic College (CMCC) have traditionally been taught using light microscopy. Because of difficulties in obtaining new histological slides and our confidence in students' computer skills we decided to gradually convert to the use of virtual microscopy in the histology lab. Objectives – To assess the effectiveness, strengths, and weaknesses of a virtual microscopy method for teaching histology to first-year students. Material and Methods – Student modular examination performance was evaluated for two consecutive eight-week modules in the histology course over several years. Academic year 2014-15 and 2015-16 used light microscopy in all modules. In 2016-17, virtual microscopy was used in place of light microscopy for the second module. A single question survey on learning preferences was administered in 2016-17 (n=130) and indicated a strong preference for the virtual microscopy method. In 2017-2018 both modules were taught using virtual microscopy. Comparison of modular exam performance on similar questions showed no statistical significance between the teaching methods used over the four years. It is apparent from both student survey results and performance of the current students in comparison to the past academic year students, that the current generation feels more conferrable using online tools in their learning. Conclusions – We found that current students performed as well as prior students in their study of histology using online virtual microscopy. CMCC will now convert the entire histology class to using virtual microscopy. (This is a conference presentation abstract and not a full work that has been published.)

Evaluating the integration of interprofessional collaborative competencies within team-based simulation training: a randomized trial

Minisha Suri, Deborah Kopansky-Giles, Kari White, Lianne Jeffs, Silvano Mior

Introduction: Interprofessional collaboration (IPC) improves health care outcomes, access and patient/provider satisfaction. Implementation and evaluation of IPC competency frameworks includes multimodal knowledge translation involving simulation-based medical education (SBME). Little is known about the impact of SBME on IPC and standardizing care delivery. Objective: To assess if formally embedding IPC competency education within team SBME enhances self-perceived collaborative competency of practitioners compared to usual simulation education. Methods: We used a concurrent mixed methods design. Participants were randomized to receive pre-simulation education (I) or usual SBME pre-briefing (C). Self-perceived collaborative competency was measured using Health Professional Collaborative Competency Perception Scale (HPCCPS). We explored participant perception of IPC using qualitative thematic analysis of audio-video data recorded during debriefs. Results: Groups were similar in age, profession distribution, years of practice, and prior simulation or IPC competency experience (I: n=28; C: n=25). There were no significant changes in mean total HPCCPS or global change scores between groups. Debriefing analysis suggested intervention groups generated well-rounded dialogue surrounding communication, teamwork and role awareness when compared to controls. Intervention participants were more likely to initiate IPC discussion during the opening of debriefings and self-reflect on non-technical skills than controls. Facilitators usually adopted a teaching role, which may have inhibited the depth of dialogue surrounding IPC. Conclusions: Results suggest that pre-simulation education on IPC competencies did not affect participants' self-reported collaboration. However, it enhanced discourse about IPC by intervention participants, which may positively influence practitioners' experience and ability to collaborate. Results inform future delivery and assessment of SBME intended to enhance IPC competencies. (This is a conference presentation abstract and not a full work that has been published.)

Development of a guided meditation for chiropractic students to reduce stress and enhance revision and recall

Henriethe Tangeland, Marina Bensen, Josefin Kautsky, Silje Myhra, Alyx Taylor

Introduction: Resilience is now recognised as important in the career of health care workers. Therefore, learning how to manage stress while studying may be a vital transferrable skill to take into clinical practice. Studies of medical students showed stress can reduce the ability to study efficiently. Chiropractic students also experience high levels of stress. Meditation has been shown by other researchers to be one of the ways chiropractic students chose to reduce stress. This study was designed to identify the factors that contribute to stress experienced by chiropractic students and develop a guided meditation specifically to address these factors. Study questions: What factors contribute to the stress? Can a guided meditation technique be developed to address these factors? Methods: In this qualitative study, thematic analysis with a realist approach, was used to address the study question. Year 1 and 2 chiropractic students were invited by email and posters. Data were obtained through focus groups and semi-structured one-to-one interviews. The text was coded and themes extracted. Positive phrases addressing each theme were incorporated in the 7-minute guided meditation and used by participants. Results: Nineteen students took part. Three main themes emerged as stressors: living away from home, time management and exam specific issues. Conclusion: Qualitative analysis identified three important themes related to stress for the chiropractic students: living away from home, time management and exam specific issues. Participants responded positively to the new guided meditation addressing these themes. (This is a conference presentation abstract and not a full work that has been published.)

Are technology-based educational interventions effective in improving knowledge about clinical practice guidelines? A systematic review of the literature

Leslie Verville, Pierre Côté, Diane Grondin, Silvano Mior, Keshini Moodley, Robin Kay, Anne Taylor-Vaisey

Background: Rapid advances in evidence-based health care make it difficult for chiropractors and other healthcare professionals to remain current with new evidence. Although technology is increasingly used to transfer knowledge, little is known about the effectiveness of technology-based learning tools in healthcare professionals. Objective: We aimed to synthesize the evidence on the effectiveness of technology-based learning tools designed to improve the knowledge of evidence-based clinical practice guidelines by healthcare professionals. Methods: We conducted a systematic review of the literature and searched MEDLINE from inception (1946) to March 2018. We included studies investigating the effectiveness of technology-based learning tools developed to improve knowledge of evidence-based clinical practice guidelines for healthcare professionals. We critically appraised the literature and synthesized the evidence from internally valid studies using best-evidence synthesis. Results: We retrieved 2540 articles. Of those, nine studies met our selection criteria and were critically appraised; four had a low risk of bias and were included in this review. We found preliminary evidence suggesting that interactive spaced-education in combination with case studies as well as interventions involving module-based online education may be beneficial in improving knowledge of evidence-based clinical practice guidelines. Conversely, the evidence suggests that spaced-education in combination with a game may not be beneficial in improving knowledge of evidence-based clinical practice guidelines. Conclusion: We found little evidence supporting the effectiveness of technology-based learning tools designed to improve knowledge about evidence-based clinical practice guidelines. Future research is urgently required to test the effectiveness of these

interventions. (This is a conference presentation abstract and not a full work that has been published.)

The development and evaluation of a technology-based learning tool to improve knowledge about the evidence-based management of neck pain by teaching faculty at a Canadian Chiropractic College

Leslie Verville, Pierre Côté, Diane Grondin, Silvano Mior, Robin Kay

Background: The growing use of technology is challenging the traditional methods of knowledge sharing in healthcare and education. The integration of technology in healthcare education is growing rapidly, however, there is a lack of understanding of how to make technology-based learning more effective in improving clinical knowledge. Objective: The aim of this study was to evaluate the learning, design, and engagement constructs of a technology-based learning tool designed to improve knowledge about the evidence-based management of neck pain in teaching faculty at a Canadian chiropractic college. Methods: The development of the learning tool was informed by a committee of knowledge users who helped tailor the tool to the needs and learning preferences of the target audience using an integrated knowledge translation strategy. We conducted a cross-sectional survey to measure the learning, design, and engagement constructs of the tool using the Learning Object Evaluation Scale for Students (LOES-S). The study sample included teaching faculty, including general faculty, clinicians, and teaching assistants. Data collection took place between February-May, 2018. We used descriptive statistics to summarize the three constructs of the tool. Results: We are currently in the data collection phase of the project. Results will be presented at the conference. We will synthesize the data to understand the favorable and unfavorable components of the learning tool in order to develop recommendations to improve its pedagogical properties. Conclusion: This study will help inform future developments of technology-based learning tools designed to improve the knowledge of evidence-based practice guidelines for chiropractic educators. (This is a conference presentation abstract and not a full work that has been published.)

Clinical risk management by interns and supervisors in a chiropractic teaching clinic in Spain

Adrian Wenban, Daniel Ranz, Pablo Martinez, Rodney Pendarvis

Background: Healthcare provider teaching institutions are charged with the responsibility of graduating providers who are safe and competent. However, little is known about how chiropractic interns and their supervisors ensure safety and manage risk during their clinical training. The purpose of this study was to investigate how chiropractic interns and their supervisors report managing high risk clinical scenarios. Methods: A questionnaire was adapted from a previous study to determine which of nine management options would be chosen by participants in response to the description of four high risk hypothetical clinical case scenarios. Responses were analysed quantitatively to determine the likelihood of each management option being undertaken in relation to the four scenarios, with results recorded as likelihood percentages. Results: Responses were received from 100% (40/40) of the interns and 100% (6/6) of the clinical supervisors invited to participate. There was a general trend for supervisors and interns to manage each hypothetical clinical scenarios by re-evaluating their care. In the scenarios where treatment appeared harmful or where a patient's condition deteriorated, an important difference was observed in the management preferences of clinical supervisors and interns in that the supervisors were much more likely than interns to stop treatment and/or report incidents to a safety incident reporting system. Conclusions: Clinical supervisors and interns tend to manage potentially risky clinical scenarios by re-evaluating the case. The difference in risk management strategy adopted by clinical supervisors and interns, when treatment appeared to be harmful or where a patient's condition deteriorated, deserves further investigation. (This is a conference presentation abstract and not a full work that has been published.)

Evidence mapping of lecture capture research in chiropractic programs: a preliminary analysis

David Wickes

Evidence mapping is used to help identify gaps in research evidence and has been used to explore specific areas within educational technology. To date no such review has been conducted for lecture capture (recorded lectures). Lecture capture is used throughout higher education, but its application in four-year chiropractic degree programs may have unique characteristics requiring investigation. Objective: The Canadian Memorial Chiropractic College (CMCC) implemented lecture capture in 2017 following a literature review and began to identify deficiencies in the research related to this technology in chiropractic education. The objective of this study is to compare questions raised at CMCC with those addressed in the chiropractic research and which are applicable to four-year degree programs. Methods: Categories of potential inquiry were derived by faculty interviews. A systematic search of MEDLINE, CINHAL, Cochrane Library, and ICL was performed for the period of 2003-2018. Inclusion criteria focused on post-lecture recorded video uses in the professional degree setting, excluding "flipped classroom" applications. Papers presented only as abstracts or posters were excluded. Results: There was virtually no published research on the use of lecture capture in the field of chiropractic education. Conclusion: Although lecture capture is increasingly used in chiropractic education, the specific use of this educational technology has not been investigated in this professional degree setting and evidence mapping was futile. Opportunities for research in this area are abundant. The scope of this study is being expanded to map lecture capture research in health professional degree programs and preliminary findings will be presented. (This is a conference presentation abstract and not a full work that has been published.)

Development of an educational app for clinic observation

Jacquelyn Wingrove, Anthony Ridding, Anthony Tibbles

Rationale: The Observership Program enables students in Years 1, 2 and 3 to gain clinical experience by observing Fourth Year Interns in the clinic system. Managing the experience for pre-clinic learners, in a seven-site clinic system, is complex. Varying capacity in each clinic, on each day across the year requires a comprehensive database and an easily adopted student-facing portal. In order to resolve these needs, CMCC developed a Clinic Observation App, downloadable to each student's mobile device. Description: A solution was developed, including defining the need and requirements of such a system. The project was an iterative process between the departmental Senior Administrative Assistant and the Clinic Business Analyst. Fortunately, the institution had recently adopted a software package that allowed for the development of the interfacing app and the database supporting the application. This allowed the project to be completed at the departmental level. The App was developed, pilot tested and launched within a two-month timeframe.Potential Impact on Chiropractic Education: A primary outcome was the reduction of the administrative burden of managing this process, compared to the previous methods of scheduling through a paper-based system, a Learning Management System or email contact. A second important outcomes was convenience for learners engaging in the clinic experience. The application allows students to schedule time to fulfill their interest and requirements. It also allows them to choose times, days, clinic, clinician and they may conveniently change their session. The database is easily queried for management of the student and program requirements. (This is a conference presentation abstract and not a full work that has been published.)

The influence of online review videos on students' gross anatomy performance and attitudes

Nicole Zipay, Christopher Roecker, Lia Nightingale, Dustin Derby

Objective: To evaluate the influence of online review videos on students' attitudes and performance in Gross Anatomy. Methods: This project involved a series of online review videos provided to two cohorts of Doctor of Chiropractic students in Gross Anatomy. We collected self-reported data on video usage and attitudes at the end of the course. Additionally, we compared these responses with course performance data. We evaluated relationships between students' video usage (in hours) and course performance using linear regression. We also used independent t-tests to compare performance differences between students who reported watching the videos and those who did not. Pearson's r and Cohen's d effect sizes determined the magnitude of relationships and differences detected. We also reported descriptive statistics regarding students' attitudes towards the online review

videos. Results: The study's response rate was 66% (143/215). Overall, 71% of the respondents reported watching the videos. Video users reported moderate satisfaction with their overall course performance (78%) and understanding of the course materials (86%). No significant differences in performance were detected between students who watched the videos and those who did not. Most of the students (84%) who watched the videos reported them as being "helpful" in learning course material and 75% perceived them as "an enjoyable way to study." Conclusion: We found no significant relationships between performance and usage of online review videos for Gross Anatomy, but students reported enjoyment with the review videos and perceived them as helpful. (This is a conference presentation abstract and not a full work that has been published.)

POSTER PRESENTATIONS

Operationalizing a strategic plan – where do we start?

Christine Bradaric-Baus, Scott Dunham

Operationalizing a Strategic Plan – Where do we start? Objective In 2017, CMCC's leadership, in consultation with the Board of Governors, staff, faculty, administration, students and stakeholders, developed a Strategic Plan framework 1 and roadmap to guide the Institution through its next phase of growth and development for the periods of 2017-2021. The strategic framework identifies six strategic themes/areas of excellence to shape the development of strategic goals and objectives. The objective of this work was to engage the institution at the curricular level and operationalize the strategic theme, "Enhancing Teaching and Learning". Methods In an effort to engage the institution at the curricular level, CMCC employed several communication approaches, progressing in breadth and reach, to prioritize curricular concerns and opportunities. This presentation will focus on the planning, preparation and support necessary to engage an academic institution, including students, faculty and staff. Results The disciplined approach to determining where to start resulted in clear priorities, desired outcomes and identified the supports necessary to deliver a curriculum that is competency driven, clinically led, evidence informed and enhanced by facilities and technology. Conclusions Attendees will gain insight into how cross institutional staff and students can collaborate in a shared commitment to content and curriculum, and begin to operationalize a strategic plan. (This is a conference presentation abstract and not a full work that has been published.)

Updating the subluxation theory: teaching an evidence-based biomechanical approach to understanding low back pain

Alan Breen, Alexander Breen

Evidence based guidelines consistently support the use of spinal manipulation and exercises for low back pain, yet the mechanism by which the effects are achieved remain obscure. Lack of quantitative evidence of how mechanical treatments work has led some practitioners to depend disproportionately on a psychosocial approach to management, while most research progress on bio-mechanisms has come from neuroscience. Recent biomechanics research using fluoroscopy to measure intervertebral dynamics in vivo has found the same kinematic markers for chronic, non-specific low back pain in three separate patient cohorts. These are related to erratic motion sharing between vertebrae during both passive and active lumbar spine motion. Further studies have found that such motion is counteracted by erector spinae and multifidus activity and found links to disc degeneration and back surgery. As these studies begin to examine the role of these markers in patient outcomes and of their relationships with other physical measures, they may offer a deeper understanding of chiropractic therapies. However, packaging this information for students requires a greater depth and a different focus of understanding of biomechanics than is common in most undergraduate curricula. This presentation will suggest ways to package such information for use in chiropractic undergraduate curricula using case studies and conceptualisation tools. It will also consider its possible effects on the day to day work of chiropractors. (This is a conference presentation abstract and not a full work that has been published.)

The impact on anatomical location identification after an ultrasound-guided palpation intervention: a pilot study

John Chinsuk Cho, Kenneth Reckelhoff

Objective: Manual palpation is an integral part of the chiropractic profession; however, accuracy of landmark-driven palpation is unknown. The objective of the study was to determine if there is a discrepancy at identifying three musculoskeletal landmarks (medial meniscus, distal fibula and lateral epicondyle) and if localization is improved after an ultrasound-guided (US-guided) palpation intervention. Methods: A convenience sample of sixteen chiropractic interns were asked to identify the three subcutaneous anatomical landmarks before and after (immediate and at a three-day follow-up) a brief educational intervention. The intervention was comprised of a 3-minute US-guided demonstration of the landmarks after participant's initial measurement. Outcome measure was the change in distance between the participant's landmark identification. Non-parametric data were analyzed with the Friedman's and Wilcoxon signed rank tests. Results: Overall, a statistically significant difference was noted in the identification of the medial meniscus (median: before=7mm+/-7.46; immediate-post=0mm+/-4.30; 3-days post-0mm+/-13.02; p=0.012) and distal fibula (median: before=18mm+/-10.23; immediate-post=1mm+/-4.90; 3-days post=2mm+/-5.97;p=0.001), but not at the lateral epicondyle (median: before=12mm+/-9.91; immediate-post=6mm+/-6.63; 3-days post=0+/-8.61; p=0.086). For the before and immediately after comparison, a statistical significant improvement was found with the medial meniscus (p=0.005) and distal fibula (p=0.002). The three-day post intervention comparison found a statistically significant difference only for the distal fibula (p=0.008). Conclusion: This pilot study demonstrated palpatory discrepancy at identifying the medial meniscus and distal fibula. Furthermore, US-guided palpation intervention seems to improve intern's ability of palpating two landmarks (medial meniscus and distal fibula) post-intervention. (This is a conference presentation abstract and not a full work that has been published.)

Optimizing the development of practitioners into educators in chiropractic college setting: an integrative literature review

Lisa K. Bloom, Kathryn Hollywood, Donna Blaess, Claudia Santin

Hiring practitioners for faculty positions in a chiropractic college setting often presents the issue of transforming a clinical expert into an educator. The efficient maturation of a new faculty hire into an educator is essential for effective curriculum delivery and to create the skill-set necessary to address U.S. accreditation standards. However, this developmental process can be frustrating for the new faculty member and the institution. A second issue in U.S. chiropractic education is the under-representation of non-white and female faculty. While there are an array of approaches to facilitate the development of a new faculty member formal mentoring strategies may be the most efficient approach with collateral benefits that are important to chiropractic colleges. New faculty mentoring has been demonstrated to effectively deliver institutional knowledge. Formal mentoring is also directly linked to increasing faculty productivity and retention, which enhance institutional reputation and decrease the costs associated with attrition. The benefits of mentoring are universally accepted in higher education and in business. However, random trial and error approaches to mentoring program development often lead to failed efforts, and wasted time and resources. Design issues may occur because of the absence of best practice guidelines for establishing new faculty mentoring programs. The findings of this integrative literature review provide the evidence-based elements necessary in a successful new faculty mentoring program. Additionally, the findings identify specific needs of non-white and female faculty members, and provide strategies for these special populations that are often overlooked in new faculty mentoring program development. (This is a conference presentation abstract and not a full work that has been published.)

Manipulation and mobilization for treating chronic neck pain: a systematic review and meta-analysis

Ian Douglass Coulter, Cindy Crawford, Howard Vernon, Eric Hurwitz, Margaret Whitley, Patricia Herman, Gursel Aliyev

Purpose: To determine the efficacy, effectiveness and safety of various mobilization and manipulation therapies for treatment of chronic non-specific neck pain. Study Design/Setting: A systematic literature review and meta-analysis. Outcome Measures: Self-reported pain, function, health-related quality of life, adverse events. Methods: We searched multiple electronic databases to identify studies between January 2000 and September 2017, examining reference lists, and communicating with experts. We selected randomized controlled trials comparing manipulation and/or mobilization therapies to sham, no treatment, to each other, other active therapies, or when combined as multimodal therapeutic approaches. We assessed risk of bias by using Scottish Intercollegiate Guidelines Network criteria. Where possible, we pooled data using random-effects meta-analysis. Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) was applied to determine the confidence in effect estimates. This project is funded by the National Center for Complementary and Integrative Health under Award Number U19AT007912. Results: 53 randomized trials (47 unique studies) were included in systematic review. Six of these trials with similar intervention styles, comparators and outcome measures/time points were pooled for meta-analysis at one, three and six months. The standardized mean difference for a reduction of pain closest to one month for manipulation plus exercise regimen compared to exercise regimen alone was SMD=-0.37 (95% CI, -0.77 to 0.03, P=0.07, I2=81%); disability SMD=-0.35 (95% CI, -0.76 to 0.06, P=0.09, I2=81%); and health-related quality of life SMD=0.19 (95% CI, -0.28 to 0.66, P=0.43, I2=82%). Heterogeneity in intervention techniques, prescribed doses/durations, and comparators prevented the ability to pool studies into further analyses. (This is a conference presentation abstract and not a full work that has been published.)

Effect of chiropractic student practice perceptions in the utilization of evidenced-based care

Vincent DeBono

The philosophical divide that has permeated the chiropractic profession since its inception is also reflected in the student cohorts within chiropractic educational institutions. The prevailing philosophical constructs of the profession range from a broad scope evidenced informed approach in which patient centered care based on best available evidence is the cornerstone to a narrow vitalistic approach with the primary premise that reduction of the vertebral subluxation as the treatment for all human ailments, a 'one cause, one cure' approach. A majority of students (85-80%) entering the chiropractic program at a University have a broad scope evidenced informed perception of practice based on incoming student surveys and this remains percentage remains stable as they progress through the program. For the 10-15% of students entering Doctor of Chiropractic with a narrow vitalistic perception of practice the concepts of evidenced informed practice tends to run counter. A student with a vitalistic narrow scope practice perception may stimulate a great deal of debate in contrast to evidenced informed approaches during the didactic portion of the chiropractic program. This type of discourse in the classroom may enrich the learning environment by prompting debate on proposed interventions and expected outcomes and calls for students to substantiate their views with evidence. However, in the clinical education environment in which interventions are being proposed on actual patients and real patient outcomes are being assessed the luxury of a lively debate on best approach based off a philosophical construct is not in the best interest of the patient. (This is a conference presentation abstract and not a full work that has been published.)

Time management and study methods in a single cohort of undergraduate chiropractic students

Philip Dewhurst, Jacqueline Rix, Caroline Cooke, Dave Newell

Objectives: It is suggested that non-academic qualities such as time management and study methods are linked to academic performance. The purpose of this study is to assess these qualities in students as they may be linked to poor performance and students who require early remediation. Methods: Students enrolled onto year one of the Chiropractic Masters (MChiro) at the AECC University College were eligible to volunteer. Questionnaire data was collected at the beginning of the academic year; end of semester one and end of semester two. Semi-structured interviews were conducted at the end of semester one and end of semester two. Results: Students' reported spending more time studying in semester two than in semester one which was contradictory to their start of year estimates. Students who were unsuccessful in summative assessments studied for significantly less time than their successful colleagues. 85.7% of students participated in extracurricular activities at the beginning of the year. This reduced during semester one (74.4%) and again in semester two (62.8%). Students who stopped participating were significantly more successful in assessments than those who continued. 100% of students who stopped participating stated lack of time as their reason. There were no significant differences throughout the year regarding time spent with family, friends or social media. Conclusion: In semester one students struggled with time management, however following the semester one assessments students seemed to have a better understanding of the amount of studying required and successful students altered their extracurricular activities accordingly. (This is a conference presentation abstract and not a full work that has been published.)

Development of graduate exit competencies at the Canadian Memorial Chiropractic College

Scott Dunham, Christine Bradaric-Baus

Objective: The Graduate Competencies for Canadian Memorial Chiropractic College (CMCC) were initially established in 2009 to describe the minimal competency expected for a graduate. In response to a global movement towards Competency-Based Education and in line with a new strategic plan, these Exit Competencies were audited. In 2015 the Royal College of Physicians and Surgeons of Canada released an enhanced framework for Competency-based medical education (CanMEDS), which formed the basis of CMCC's review of their Exit Competencies. Methods: A step-wise process was undertaken to align CMCC's graduate competencies with the previously established CanMEDS framework. The CMCC Curriculum Committee is composed of undergraduate and graduate chairs and directors, with representation from library, student services and student's council and were tasked with this process. The process began by identifying the roles which graduates fulfill, and then moved to establishing Key Competencies which related to these roles. Once Key Competencies were established, Enabling Competencies were identified and through numerous feedback processes were fine-tuned and presented for approval to the Board. Results: The CMCC Graduate Exit Competencies were successfully re-worked into a more user-friendly format which includes Roles, Key Competencies and Enabling Competencies. All stakeholders at the institution were represented in the development of this document. Conclusions: A user-friendly and updated set of Graduate Exit Competencies were created in-line with the CanMEDS framework consisting of Roles, Key Competencies and Enabling Competencies. A mapping of course and departmental outcomes will occur next to match the updated exit competencies. (This is a conference presentation abstract and not a full work that has been published.)

Research week: a tool to promote scientific research among students

Ricardo Fujikawa, Arantxa Ortega de Mues, Carlos Guillen Viejo, Camino García Balboa, Alma Vazquez Esteban

Introduction: Undergraduate scientific research can be a tool to enhance educational experience. Undergraduate research offers several challenges such as competing subjects in an already busy curriculum, attracting the interest of students, and time to develop research projects in a 5-year programme. There is no doubt about the important role of research in chiropractic education, therefore in order to promote a research-friendly environment in education, the Madrid College of Chiropractic implemented an annual event: the Research Week. After 5 editions of the event, the authors analysed the attitude of the students towards research after the most recently research week. Questionnaires were distributed to the students in which questions in regard to research and students' perceptions were asked and the answers were analysed. Results Students and interns report to be more interested in research and that they don't consider research as an specific area only reserved for specialists. Students also value the scientific method and value its use in evaluating the quality

of evidences provided by the literature. They also expressed more interest in engaging in research in early years of the programme. (This is a conference presentation abstract and not a full work that has been published.)

Are there tools to assess intuitive reasoning in health sciences students?

Olivier Guenoun, Arnaud Lardon, Magali Risch, Nadège Lemeunier, Thierry Pelaccia

Background: The emergence of dual process models of reasoning, as well as recent research on expertise have highlighted the importance of intuition in decision making by health professionals. Alongside these developments, there is a growing need to assess health care students' intuition. Objectives: To determine whether specific tools for assessing intuitive reasoning in health sciences students have been described in the literature. Method: We conducted a scoping review regardless of the area, discipline, and health care profession. A first exploratory step was carried out, by searching the Google Scholar, ScienceDirect, PubMed and ERIC databases, followed by a systematic search on several websites: BDSP, Cairn, Cochrane, EM premium, Sudoc, Persée, PubMed, Medical Pedagogy, ScienceDirect, Springer, and Web of Sciences. Results: 157 publications have been identified, after excluding duplicates, applying inclusion and exclusion criteria, and reading the full texts. We found two articles that describe tools to assess both analytical and intuitive reasoning. At present, no tool has been described in the literature to specifically assess clinical reasoning in its intuitive dimension. Conclusion: There is currently no specific tool to evaluate the intuitive reasoning in health sciences students. Many of the tools described in the literature aim to assess the analytical dimension of reasoning, the product of reasoning as a whole, or how knowledge is organized in long term memory for reasoning. (This is a conference presentation abstract and not a full work that has been published.)

Journal club: a tool for training faculty to be informed research consumers

Charles Henderson, Monica Smith, Scott Donaldson

Chiropractic faculty are well trained and experienced in their disciplines, but often enter academia with no formal research training (either as "consumers of research" or as "producers of research"). This deficiency hampered efforts by our college faculty and administrators to develop a scholarship culture. Therefore, our institution instituted a tiered in-house training program to support and encourage faculty scholarship: An Introductory-level Faculty Journal Club (IFJC) (to develop and refine critical appraisal and evidence-informed application skills), and Research Producer Modules (a 3-course, intensive, experiential learning program that helps motivated faculty acquire essential research producer skills). Research articles are read aloud during synchronous online meetings with a formally trained researcher present to discuss research concepts and interpretive issues. Critical reading skills and fundamental research concepts are introduced naturally as each article presents opportunities for discussion. This ensures that key elements of manuscript presentation, study design, and study-specific methods are discussed and understood by participants. The format incorporates planned redundancy, with successive articles presenting opportunities to revisit essential topics. This "introductory level" Faculty Journal Club does not require busy faculty to prepare for the meetings. It is designed to introduce critical reading skills in a self-contained format, strengthen familiarity with the research literature, and support an evidence-based perspective. We report our two-year experience introducing, developing, implementing, and evaluating the IFJC "research consumers" program. Thematic analysis of qualitative faculty and department administrator survey data identified barriers and facilitators to program participation. (This is a conference presentation abstract and not a full work that has been published.)

Business studies education in the chiropractic curriculum: do we do enough?

Adrian Hunnisett, Sarah Sharp, Caroline Walton, Christina Cunliffe

Objectives: The aims of this study are to explore the perceptions of the profession regarding requirements for a successful business, and then how the curriculum of a chiropractic college provides the necessary knowledge to meet those perceived needs. Methods: Following relevant ethical approvals, the study was formed of 2 self-administered cross-sectional surveys, i. A questionnaire to registered practising UK chiropractors via email and regular postal service. ii. An electronic questionnaire, distributed via group email, to all final year students at a UK chiropractic college. Results: Response rates were 25% and 90% from the surveys respectively. The profession identified good communication skills, a regular stream of new and repeat patients and a connection with the local community as critical business skills, coupled with clinical expertise and good treatment outcomes. Only a minority (35%) felt that good business knowledge a requirement as professional business advice is readily available elsewhere. The student survey indicated that the majority of graduates are prepared to manage business finance, but a greater need for training around marketing (74%). All students felt they received sufficient clinical training to meet the needs of the profession. Conclusions: The study suggests that successful chiropractic business relies less on business acumen and more on good clinical and communication skills. Curriculum design should consider the criticality of interpersonal skills, whilst offering a balanced focussed business module. (This is a conference presentation abstract and not a full work that has been published.)

What do professionals profess? Teaching the principles of professionalism

Stuart Kinsinger

Our calling, as educators, is to teach the principles of professionalism facilitating students' acquisition of professionalism values. Chiropractors profess to: 1. Uphold the Social Contract - Students must personally fulfill this 'deal's' obligations and provisions. 2. Act as a Moral Agent - Cultural authority is secured by chiropractors who aspire to and deliver optimal care while using their position of power for social justice. 3. Practice ethically - Learners must assimilate and apply the foundational ethics and virtues of care. 4. Protect the powerless - We set boundaries to ensure the privilege of touch is never abused, creating a safe and nurturing environment. 5. Be honest and truthful - Learners must be taught fraud prevention and management of conflicts of interest ensuring all aspects of business are honest and ethical. 6. Keep private things confidential - Patients bare their bodies and their souls because they trust us to keep private things confidential. 7. Communicate effectively and empathically - Society demands that we communicate honestly with clarity and empathy. Learners must take proactive steps to manage their digital footprint (social media). 8. Model optimal health and wellness - Because burnout is a patient-care issue, the responsibility for self-care is the professional's. Learners have a unique opportunity to model health and wellness despite the rigors of study. 9. Honor and uphold the profession - This is accomplished as the learner acculturates through socialization, affirming professionalism tenets. 10. Put patient needs first and foremost - Fiduciary responsibility means placing the needs of the patient above that of the professional. (This is a conference presentation abstract and not a full work that has been published.)

Evidence-informed case-based learning: clinical case of week program and related curricular integration

Tamara MacIntyre, Scott Donaldson, Monica Smith, Krista Ward

Objective: Our objective is to describe Clinical Case of the Week (CCW), a program introduced at Life Chiropractic College West in January 2017 to better address CCE meta-competencies Diagnosis and Case Management. The CCW program required intensive coordination and collaboration involving the entire institution. Methods and Results (CCW Program Development and Outcomes): Initial implementation of CCW highlighted the need for additional changes related to case-based learning (CBL) content delivery. Addressing knowledge gaps identified by CCW and fostering a smoother transition from didactic critical thinking (classroom approach) to applied clinical reasoning (e.g. diagnostic calibration), required improved integration across the entire curriculum. Providing students with individualized feedback from CCW required developing and testing a program-specific grading rubric and a new immediate feedback reporting system. While the initial development of the CCW program was a time-intensive and substantial institutional investment of resources across multiple departments, the CCW venue has

provided multiple valuable opportunities for students to practice tools used in clinic, exams and classrooms. Initial focus of CCW emphasized evidence-informed diagnostic competencies. Ongoing and future program development increasingly expands upon comprehensive competencies for effective chiropractic and integrative case management. Conclusion: We employed an evidence-based approach to the development, implementation, and evaluation of a team-based, innovative clinical training program at our institution. We report on successes and challenges to full horizontal integration (along the entire curriculum) and vertical integration capitalizing on expertise and input including a wide range of diverse stakeholders from institution administrators, to program coordinators and faculty, to students. (This is a conference presentation abstract and not a full work that has been published.)

A global issue: evidence-based practice revisited

Anthony Rosner

Evidence-based practice based on evidence-based medicine (EBM) is beset with numerous problems. In addition to the fact that clinicians, policy makers, patients, and third party payers have each customarily sought differing types of evidence, EBM itself has traditionally incorporated a hierarchy of clinical research designs, placing systematic reviews and meta-analyses at the pinnacle as presumably the most accurate studies predicting clinical outcomes. Yet the canonical pyramid of EBM excludes numerous sources of research information, such as basic research, epidemiology, and health services research. Furthermore, models of EBM commonly used by third party payers have ignored clinical judgment and patient values and expectations, which together form a tripartite guideline to effective clinical care and which need to be incorporated into the more progressive models of EBM. Furthermore, poor systematic reviews which comprise a significant portion of EBM are prone to subjective bias in its inclusion criteria and methodological scoring which have been shown to skew outcomes to such an extent that diametrically opposing results can be obtained—depending upon which scoring criteria are employed. Finally, the blinding concept which lies at the heart of randomized controlled trials, designed for allopathic medicine, is particularly problematic in all applications of physical medicine. Examples are drawn from the research literature in physical medicine to highlight conclusions which are open to debate rather than definitive statements as claimed. For these reasons, more balanced palettes of components comprising EBM are recommended, together with greater recognition of the varying audiences that might be employing EBM. (This is a conference presentation abstract and not a full work that has been published.)

INNOVATION PRESENTATIONS

Objective structured clinical examination (OSCE)

Christine Bradaric-Baus, Scott Dunham

Rationale or need for the innovation: As students progress through the first 3 years of the Doctor of Chiropractic program at the Canadian Memorial Chiropractic College (CMCC) they satisfy learning outcomes from courses in many different departments pertaining to clinical management. An objective measure of a student's clinical competency is required to monitor their progress, and feed into addressing areas of concern prior to entering their clinical year. Students also need opportunities for robust experiential learning, and opportunities to reflect on these experiences. Short Description of the innovation: Objective Structured Clinical Examinations (OSCE) have been widely used to great effect in medical education for years. Proper design, critique and administration of an OSCE is critical to reveal an overall picture of a student's clinical competency. Proper training of markers and standardized patients helps ensure a valid and reliable assessment. A 10-station OSCE at the end of years I-III provides critical real-life experiential learning and a valuable assessment experience. Potential impact on chiropractic education: The OSCE exam provides a valuable assessment-as-learning experience for students, and a useful bench-mark of overall clinical competency heading towards their internship. Blueprinting and careful planning of stations ensures a comprehensive assessment of various conditions, evaluations and roles encountered as a practicing Chiropractor. The potential impact on chiropractic education includes improved assimilation of information pertaining to patient care, and a better prepared intern entering their clinical rotation. (This is a conference presentation abstract and not a full work that has been published.)

Universidad Veracruzana chiropractic program: first chiropractic program in faculty of medicine in Mexico

Jorge Castillo

Universidad Veracruzana started developing the project of a Chiropractic School in 2011 with the collaboration of Colegio de Profesionistas Cienctificos Quiropracticos de Mexico A.C to develop a curricular program for chiropractic in Veracruz, Mexico. This program should be meet national and international standards of education according with other chiropractic programs around the world and with the guidelines of World Health Organization. This chiropractic program was developed inside the Faculty of Medicine of Veracruz and is the first time in Latin America when a chiropractic school is opened in the faculty of medicine in a public school. The program has a very strong basic science content, such as biochemistry, anatomy, neurology, and pathology, with the medical faculty. It is important to understand the human body and all its function so that students can rule out certain pathologies that do not belong to the neuromusculosqueletal system. The commitment to basic sciences is combined with strong chiropractic sciences with experienced chiropractors who studied in the United States, France, and Mexico and have been in practice for 10 years or more. (This is a conference presentation abstract and not a full work that has been published.)

Reinforcing conceptual learning in chiropractic education: real-time decision making using a simulated patient encounter

Danny Clegg, Dean Whitcombe

Concepts of patient encounters are taught as a continuing theme on the Chiropractic education programme. Prior to their final year students are not involved in a situation where they make real-life decisions affecting patient management. The "Hydrapractic" initiative was created to deliver a strategical learning exercise, using a simulated patient encounter to test competencies gained through conceptual learning. Hydra Minerva is a facility traditionally used for the training of police and emergency services. The University of South Wales has the only facility of its kind in Wales. The capabilities enable pre-recorded and real-time digital media and group tasks to be created and distributed to students from a dedicated control room. Students converge into small groups and enter learning "pods" containing all the equipment necessary to participate in the exercise. Videos and tasks are then delivered to the pods through digital platforms. A final plenary session with all students together collates all the task responses for a deeper, critical discussion. A 2-part patient encounter using actors was designed, filmed and edited for purpose. On the scheduled day for delivery of part 1, Hydra Minerva facilities were unavailable due to adverse weather. A contingency version was created and delivered through alternative VLE channels, with students creating "pods" using their own homes. This initiative has received institutional and international recognition as it enabled students to gain a learning experience they would have otherwise missed out on. All students and academic staff who participated in both learning exercises reported positive feedback, with the cohort unanimously stating they would benefit from this type of learning experience more often, as it provides a deeper understanding of concepts taught in the classroom. (This is a conference presentation abstract and not a full work that has been published.)

Tell us something we don't know about the trust crisis for the profession: chiropractium

Alison Dantas, Ronda Parkes

Health care and technological advancements have led to better patient care across professional clinical disciplines, but the rapidity of evidence-based research and changing guidelines make it difficult to quickly adopt the information into day-to-day patient care. The gap between trends, research, and best practices; and between knowledge dissemination, translation, and implementation; can cause a delay in providing the very best patient-centred care. Chiropractium is the latest offering by the CCA exclusive to its members. It helps

strengthen our professional community by bringing together information and best practice in the key areas of patient experience, practice management and evidence informed practices. Chiropractic education does not end at graduation and licensure. It is the role of our stakeholder organizations to support the profession in staying current and relevant in the ever evolving healthcare environment. The Chiropractium Web App is the CCA internal brand strategy because success is all about people and our people are chiropractors who as healthcare providers have a very low level of trust. Tell us something we don't know about the trust crisis for the profession. This is where Chiropractium is different. The CCA has taken strategic leadership to create a platform of curated content to deliver trusted information that matters to our members and helps to build the professions authority and enhance the patient experience of chiropractic. (This is a conference presentation abstract and not a full work that has been published.)

Chiropractic training in a multi campus environment: challenges and rewards

Barry Draper

The majority of training for chiropractors takes place in single campus locations. Central Queensland University, Australia's most recently established provider of chiropractic training delivers its chiropractic offerings across 4 campuses scanning a geographical area of some 3 million square kilometres. Whilst challenges generic to the delivery of multi campus education such as the standardization of process, communication and collaboration amongst staff and technological issues exist, these are compounded by those specific to the delivery of a chiropractic program. Such challenges are often located in the domain of psychomotor and practical skills development and require the implantation of innovative ways and means of teaching in order to ensure students obtain and maintain these skills. The rewards which delivering chiropractic training in multiple locations are, however, many and varied, and include the ability to deliver training in a flexible learning manner which broadens the reach of the University to attract students from locations outside of major cities. In this presentation I will share our experience in meeting the challenges and celebrating the rewards of multi campus delivery. (This is a conference presentation abstract and not a full work that has been published.)

Implementation of a lecture capture system at the Canadian Memorial Chiropractic College

Scott Dunham, Christine Bradaric-Baus

Rationale or need for the innovation: As part of the 2017-2021 Canadian Memorial Chiropractic College (CMCC) Strategic Plan, a major emphasis was put on enhancing teaching and learning through the use of educational technologies. Issues which an educational technology solution was tasked to address included the following: 1) Ability for students to review difficult concepts accurately that were presented in class; 2) The review of material prior to an examination, or when a class is missed due to illness; 3) Ability for lecturers to provide more active learning strategies, including flipping the classroom. Short description of the innovation: A Lecture Capture technology was selected for implementation at CMCC. This involved outfitting the lecture halls with video cameras and recording software (Panopto) which easily linked recordings to the Learning Management System. The technology was introduced at the beginning of the 2017-2018 Academic Year, with increased adoption by lecturers through the year to the current rate of 85% of lectures being recorded. These recorded lectures are initially reviewed by faculty, then released to students through the LMS, and searchable by users to clarify issues, and review lectures in part or in their entirety. Potential Impact on chiropractic education: Although a relatively new technology, preliminary research supports the use of lecture capture within higher education health care environments. Student's response has been overwhelmingly positive, with 26,000 views totaling over 12,000 hours with increased usage prior to exams. The potential impact for students is a flexible and enhanced learning experience and deeper understanding of material. (This is a conference presentation abstract and not a full work that has been published.)

Development of a clinician curriculum at the Canadian Memorial Chiropractic College

Craig Jacobs, Anthony Tibbles, Philip Decina

Rationale: Primary supervising clinicians at the Canadian Memorial Chiropractic College (CMCC) are experts in their field and most hold fellowship designations or advanced degrees. However, keeping on top of the scientific and educational literature can be challenging and lead to burn out amongst clinicians. In an effort to keep clinicians on the cutting edge of our field and ensure that they are supported in continued ongoing professional development, we have created a Clinician Development Curriculum. Description: The curriculum was developed by a Clinician Curriculum Committee made up of clinician representatives and the Clinic Management Team at CMCC. We have identified ten "curricular leaves" for continued development in the curriculum. All topics identified for development are then mapped to each curricular leaf, CMCC graduate exit competencies, as well as to CMCC's strategic plan. Development occurs at Clinician Development Days, with online training, and weekend workshops. We strive to ensure a balance between all components of the curriculum. Development areas are tracked on an ongoing basis and the Clinician Curriculum Committee meets to identify new areas for development. Potential Impact on Chiropractic Education: The development of a Clinician Curriculum will ensure that supervising clinicians continue to maintain and develop competency and expertise in chiropractic education and delivery of care. As all curricular leaves are mapped to CMCC graduate competencies and CMCC's strategic plan, this will ensure that clinicians further their own education in areas deemed essential to chiropractic education. Ideally, this will improve both clinical education and the application of evidence-based care. (This is a conference presentation abstract and not a full work that has been published.)

Harnessing technology to train students and faculty in meaningful use of electronic health records

Celia P Maguire

Rationale: Technology was selected that provided students with an authentic Electronic Health Records (EHR) experience in the classroom, as well as facilitated training faculty and students using the least amount of time, expense and manpower. Description: Key technology included a lecture capture system, Blackboard learning management system and a laptop leasing program. Lecture capture software recorded training sessions and brief instructional videos for EHR workflows and surfaces. Within Blackboard learning management system a permanent training course with modules appropriate for students and faculty was created. This is a centralized place to post vendor provided materials, as well as institutionally developed manuals, links to training videos and self-competency reviews. The same training modules can be shared in the Blackboard page for all relevant courses. The University leases computers to the students for their last 5 trimesters in the DC program. Ownership of the computer transfers to the student upon graduation. The laptop allows access to a teaching EHR database and the live EHR database once students become clinic interns. The laptops can also be used to view the lecture capture system products and access the online coursework in the Blackboard learning management system. Outcomes: Without significant building redesign, we were able to give every student access to the EHR in relevant classes and clinics. All faculty and students have access to training materials and self-assessment. The common module format allows instructors from multiple courses to take advantage of common EHR training materials and incorporate into existing courses. (This is a conference presentation abstract and not a full work that has been published.)

Using backwards design to implement electronic health records in the classroom and clinical setting

Celia Maguire

"They do things differently on the other side of the street." The colloquialism may vary by institution, but the challenges posed by silos within and between the clinical and classroom experience are common and shared. Integrating the meta-competency assessment process with the creation of an Electronic Health Records (EHR) system provided an opportunity for collaboration and cross training

to eliminate silos in our curriculum. Backward design is a three-stage process that starts by identifying the desired outcomes. The first stage shows institutions programmatic learning outcomes mirror the CCE meta-competencies and outcomes. The clinical record and clinical encounter itself (whether live or mock) are identified as acceptable evidence to show outcome achievement in the second stage. The third stage is planning the learning experiences and instruction in the academic and clinic coursework. The team tasked with designing the EHR included academic and clinical faculty involved in the existing meta-competency assessment. The team then built the EHR for students to provide evidence of meta-competency achievement. Key courses were identified that best aligned with the fundamental meta-competency outcomes. The faculty in these few courses became our faculty champions and were trained first, followed by the clinic faculty and then the faculty at large. The impact of our three-stage process innovation was increased student preparedness for the clinical environment, development of common assessment measures between courses and two trimesters of authentic EHR experience in a classroom environment. (This is a conference presentation abstract and not a full work that has been published.)

Evaluating the evaluator: important changes in ECCE processes and procedures resulting from membership in ENQA

Cynthia Peterson

Rationale: ENQA is the umbrella organization for European Quality Assurance agencies who meet their membership 'Standards'. ENQA represents these agencies at the European and International levels. Each member agency is subject to review every 5 years with ECCE enjoying membership since 2010. However, resulting from the 2016 review, ECCE was put into the 'member under review' category until specific changes in ECCE's policies and procedures were implemented. Improvements were done and ECCE underwent a re-review in January 2018. Three of these changes are presented below. Description of ECCE Changes: 1) The 36 ECCE 'Standards' were critically analyzed by the Quality Assurance Committee and 18 identified as 'Critical', requiring 'fully' or 'substantially' compliant levels to receive the maximum 8-year accreditation period; 2) A table was created and approved by Council listing specific criteria for each of the 4 levels of compliance (fully, substantially, partially, non-compliant); 3) Students are now included on ECCE, ECCE evaluation teams and the Commission on Accreditation committee. Primary potential impacts: 1) The use of Students on Evaluation Teams has received excellent feedback from all involved participants, resulted in better rapport with students in the evaluated institutions, and provided important insight and evaluation information; 2) The use of 'Critical Standards' and the criteria table should help institutions plan and improve their programmes and evaluation documentation; 3) The 'Criteria' table for determining level of compliance for each 'Standard' should reduce evaluation team subjectivity; 4) The flexible (8-year maximum) evaluation cycle facilitates joint accreditation events with national accrediting bodies. (This is a conference presentation abstract and not a full work that has been published.)

The necessity of enhancing pediatric chiropractic education

Kristina Petrocco-Napuli, Vincent DeBono

It is known that the special population of pediatrics utilizes manipulation and a variety of other complementary healing practices to assist in treating conditions and the association symptomatology. Throughout academic institutions there is a lack of formalized training in relation to the pediatric population. Upon graduation from chiropractic college students enter into the workforce and lack the expertise of treating and assessing pediatric patients leading them to participate in a variety of post graduate continuing education courses. While there is a variety of continuing education coursework that exists there are not current standards to demonstrate quality and skill related to the treatment of this population. The design, development and implementation of masters degree programs associated with assessment, diagnosis and treatment of the pediatric population is necessary. Advanced degrees with an experiential design such as this would provide the ability to set standards of training and further research opportunities in this population. The implementation of a pediatric masters degree would not only have impact on the education of students, patient outcomes but the entire profession globally. (This is a conference presentation abstract and not a full work that has been published.)

The Bracken system: a digital critique system to assess chiropractic intern performance

Matthew Sherson, Katie Pritchard, Kelly Holt

At Chiropractic college critiquing intern performance during clinical practice can be difficult and often results in a large amount of administrative paperwork that can be cumbersome for both staff and students to manage. Until 2016, at the New Zealand College of Chiropractic, the system to manage these assessments (also referred to as critiques) was paper based. An intern would be observed, critiqued and these critiques were then manually summarised. Once the critique was complete, feedback would be provided to the student verbally. A significant amount of administration time was involved between the intern and the mentor with some subjectivity based on what the mentor observed and what the intern believed they had performed in the assessment. In 2016 the New Zealand College of Chiropractic developed an online digital critique system to streamline this process. The development of the Bracken system focused on two main areas. First, being user friendly enough for both mentors and interns of different experience levels to be able to navigate. Second, the system needed to be robust enough to provide the type of assessment tool that would enable comprehensive intern feedback in the form of video for learning, as well as assess intern and mentor performance through peer moderation. Multiple tests and trials performed showed the inherent power of the system and rollout began in January 2016. This presentation highlights the strengths and weaknesses of the Bracken system as well as potential uses of this system in the academic preclinical environment. (This is a conference presentation abstract and not a full work that has been published.)

Diagnostic imaging international collaborative training program- thinking outside the viewbox!

Paula Stern, Varsha Kumar

Rationale/need for the innovation- Training Diagnostic Imaging (DI) residents requires diverse expertise, extensive manpower and can be costly. Student enrollment is small and manpower requirements are high. The curriculum is extensive, requiring instructors with vast expert knowledge however, rarely does one individual contain all the topical expertise. A multi-institutional program (with online teaching) would allow access to international experts, enhance student experiences, share teaching manpower, decrease program costs and create a unique, collaborative educational program. Description of innovation- A common curriculum requirement is specified by the American College of Chiropractic Radiologists for all DI residents. Our innovation proposes for a collaboration amongst Chiropractic Colleges to share in the training of DI residents. Technology supports distance education. And with the increased accessibility to digital imaging, synchronous sessions can easily be facilitated by DI faculty using online avenues, such as "GoToMeeting". This can be designed as a course, weekly film review sessions and/or monthly rounds. Instructors will coordinate a course that is attended by their DI resident(s) and those from participating Colleges. Potential impact on chiropractic education- We have successfully piloted the training of recent DI residents utilizing a combination of onsite and offsite experts from 3 countries (Canada, US, Australia). By sharing expertise, the DI residents benefit from a collaborative environment across Colleges and develop a healthy camaraderie amongst peers. The institutions maximize their faculty, allowing for a decrease in manpower and most importantly, the DI residents will be trained by local and international leading experts in each specific field. (This is a conference presentation abstract and not a full work that has been published.)

Online vs face-to-face learning: leveraging course design and technology for active learning and student engagement

Noni Threinen, Dung Mao

Professional healthcare educators face numerous challenges when creating educational environments that foster both meaningful engagement and effective learning. Factors such as large class size, classroom and clinical curriculum silos, and limited class time makes it hard for students to connect with their instructor and peers and bridge

the gap between the classroom and real-world practice. This course addressed these challenges by leveraging educational design, technologies and collaborations. Integrated learning activities were developed using blended online and F2F sessions. Students were placed in small section, cohort-based groups within large F2F sessions and in online discussion forums for reflection, research and discussion. Students worked only with cohort members to increase opportunities for learning engagement with peers in smaller communities of practice. The instructor sampled each cohort's responses to provide weekly feedback and assessment. To bridge the classroom – real-world gap, the instructor collaborated with clinical supervisors to provide opportunities for lower level students to learn from upper level interns. Lower level students were given specific communication skills checklists and feedback questions to guide learning experiences. Supervisors gathered and reviewed observations throughout the course and later shared comments with their interns. Professional community members also led a series of discussions with facilitated Q&A. Students submitted final written reflections to apply their learning in future practice. This balance of design, technology and collaboration will expand the ability of instructors to fully engage students in active learning while effectively addressing a variety of common professional education challenges and achieving professional competency standards. (This is a conference presentation abstract and not a full work that has been published.)

Frame of reference training for OSCE and clinical competency assessment

Anthony Tibbles, Phil Decina, Craig Jacobs

Rationale: Variability between markers can be unfair to the learner during OSCE and Clinical Competency Evaluations. Frame of Reference training is a technique used to train assessors, resulting in an increase in consistency and accuracy of marking. It helps assessors distinguish between levels of performance and identify where a learner is on the competency spectrum. Description: Frame of Reference training was provided to clinical educators at a testing centre. Assessors observed live assessments by an examinee on a standardized patient through one-way glass and video capture. Clinicians were organized into groups of 6 and worked through a series of stations, consisting of both OSCE stations and competency assessment stations. Each clinician marked the examinee according to the rubric for that station. At the end of the assessment, the group discussed their ratings and differences with the aid of a facilitator, working toward a common understanding or agreement on the specific tasks and grading scale of the rubric. The group then moved to the next station. Potential Impact on Chiropractic Education: This exercise provided assessors an opportunity to gain an understanding of accuracy in clinical assessment. Such training has been shown to increase accuracy by allowing the development of a shared view of rubric scores as assessors discuss among themselves and with the aid of a facilitator. This type of training will be repeated at Clinician Development days as an ongoing Quality Assurance process. The impact should be a fairer assessment for students by providing consistency between clinical assessors. (This is a conference presentation abstract and not a full work that has been published.)

Doctorate of health professions education program and teaching residency

Melinda Turner, Martha Kaeser, Cheryl Houston

Rationale/need for the innovation: In most healthcare education programs, educators are content experts with little to no formal higher education training. Chiropractic education is no different. Logan University (LU) is addressing this need with a Doctorate of Health Professions Education (DHPE) Program and Teaching Residency. Short description of the innovation: The goal of the DHPE/Teaching Residency is to advance health care through the education process. Health professions clinical educators are in high demand. Graduates of Logan's combined doctoral degree and residency program will be able to take their clinical expertise and translate it into the field of higher education to prepare tomorrow's practitioners. This program is innovative in a number of ways. Residents are simultaneously immersed in a formal education program as scholars and in settings as educators where they may immediately implement what they are learning with direct mentoring and timely feedback from program directors, faculty and administrators. The program is an interprofessional collaborative effort between LU's College of Chiropractic and the College of Health Sciences. The Teaching Residency equips chiropractic faculty to develop a teaching portfolio and a toolkit of practical and applied educational approaches. Successful residents of this three-year teaching and learning program emerge with rich experiences in the meta professional roles of teaching, scholarship, service and administration. Potential impact on chiropractic education: The Health Professions Educator residency program will provide higher education training in collaborative teaching, inter-professional assessment activities, and innovative and engaging learning activities in line with evidenced based content and andragogy. (This is a conference presentation abstract and not a full work that has been published.)

Integrating postural motor control exercise and communications: a bridge from back pain to cultural relevance

Steven Weiniger

Posture is the intersection of structure and function, and along with other bio-mechanic risk factors is generally perceived by physicians as a significant factor for low back pain (LBP). StrongPosture® motor control rehab and the PostureZone® model are an evidence grounded, non-pathologizing approach to addressing and measuring posture. Spinal manipulation and manual therapies restore subtleties of motion, and postural Motor Control Exercise (MCE) can retrain that motion. StrongPosture® MCE systematically addresses errors between an individual's perception and objective benchmarks to correct these sensorimotor errors and strengthen Balance, Alignment and Motion (BAM). Posture care is congruent with most chiropractic identities, and combined with postural MCEs and bio-mechanic education in a chiropractic practice can engage and empower people for self-care and intelligent habits. Posture care can be the bridge for relevance, fulfilling plans for a "New Chiropractic" to achieve greater cultural legitimacy by making a societal contribution that sets us apart as experts in a distinctive area of generalised special interest such as improved posture through motor control. The StrongPosture® BAM and PostureZone® model integrates in-office rehab, patient education and home self-care to actionably address bio-mechanics. The framework is also congruent with the "Positive health concept" approach from The Lancet's 2018 LBP Global Call to action, and would help DCs to build bridges to other healthcare professionals, and society. (This is a conference presentation abstract and not a full work that has been published.)

Program design for evidence-based health education

Stephney Whillier, Natalie Spence, Rosemary Giuriato

Rationale/Need for the Innovation The Institute of Medicine Committee on the Health Professions Education Summit in 2002 recommended that all health care professionals and trainees adopt evidence-based practice (EBP). A review of 2006 to 2011 publications found that EBP is found in most medical schools around the world, but it varies a great deal across institutions. By contrast, chiropractic has lagged on the uptake of EBP. A 2006 systematic audit on how comprehensively EBP is represented in Councils on Chiropractic Education, found that there was a slow uptake of EBP terminology and trends. Short description of the innovation This example from Macquarie University in Sydney, Australia, outlines the process through which a department collaboratively re-designed an existing five-year program as an EBP program. The process incorporated a series of facilitated workshops. To develop the concepts of evidence-based practice, program learning outcomes were organised into three 'streams': professional practice, clinical research and clinical science. A whole-of-program approach was successfully used to map the teaching within an evidence-based framework. Potential impact on chiropractic education Strengthening evidence-based practice and curriculum alignment across an established education program is a complex task that requires investment from the whole program team. We discuss the need for active and ongoing collaboration in the implementation of change and reflect on the process as a method that can be taken up by other health education programs. This knowledge greatly assists staff and students to understand the flow of information within the program. (This is a conference presentation abstract and not a full work that has been published.)

WORKSHOPS

Teaching philosophy statements in chiropractic medicine programs: creation, implementation, and review

Christopher Arick

Description: Writing a statement of teaching philosophy is an essential part of the purposeful, reflective, and scholarly practice in teaching and learning. A teaching philosophy statement should reflect the personal values of the teaching faculty member and the needs of the students and department. Teaching philosophy statements should include within their narratives the faculty's beliefs of teaching and learning, a description on how he or she teaches, and the rationale for the reason for teaching in that manner. The purpose of these statements should be understood and the responsibility completed and reviewed by faculty in each chiropractic medicine program periodically. This workshop will empower the attendee to write his or her own teaching philosophy statement and hold development workshops to teach others to do the same at their respective institutions. Skill-based learning objectives: 1) Identify and organize the structure and components of a teaching philosophy statement; 2) Construct a working teaching philosophy statement that includes essential elements and includes some optional statement items; 3) Develop instructional sessions to assist other faculty members to create teaching philosophy statements that is tailored to the needs of the specific department and program; 4) Evaluate their own and other teaching philosophy statements for completeness, strength, and clarity. (This is a conference presentation abstract and not a full work that has been published.)

Towards a model of business education for chiropractic

Ayla Azad

Business education within chiropractic programs has historically lacked a comprehensive structured model that is fully integrated within program curriculum. Current significant research has identified a need for education in the fields of accounting, finance, marketing, legal/ethical, organizational behaviour and human resources, operations and systems management, managerial decision-making, and strategic management. Also identified in recent research are substantial gaps in both business knowledge and skills related to these fields and other areas. Concurrently, many new graduates note a lack of confidence and competence and feel ill-prepared to succeed in the business aspect of the field. This puts many graduates at risk for success and/or lead them to subscribe to questionable at best, and unethical at worst, marketing and business practices, again putting them at risk to fail in the field. This workshop seeks to identify current business learning needs and address identified skill and knowledge gaps to work toward the development of a contemporary model of business education for chiropractic that supports "thrival" in the field. Participants in this interactive workshop will: 1) Determine chiropractic business education needs and gaps; 2. Create a contemporary business education model. (This is a conference presentation abstract and not a full work that has been published.)

Cultural competency in the academic clinical setting

Karen A. Bobak, Lisa K. Bloom, Kristina L. Petrocco-Napuli

The chiropractic profession serves an ever more diverse population and is increasingly included as a collaborative member of patient-centered healthcare teams. As such, it is imperative that DC students receive training and mentoring in cultural competency. A critical part of this training process must involve both faculty and institutions serving as role models. Increased cultural competence has been demonstrated to improve patient outcomes. However, students in the health professions report limited training in this topic and are generally not well equipped to manage cross-cultural exchanges. Key elements of this training must include the development of self-awareness of the students' own cultural skills/biases and the continual integration of cross-cultural training opportunities. The training must also emphasize the importance of lifelong learning and critical self-reflection to develop supportive interactions with patients and other professionals. While the training of students in cultural competence is an expectation of professional accreditation standards, the profession must embrace cultural competency as a core value as the profession works to expand utilization and continue to improve patient outcomes. Objectives: Participants will be able to: 1) Recognize "social blindness" and the effects on marginalized groups; 2) Describe why healthcare providers must incorporate patient values to maximize patient-centered care; 3) Explain the importance of using appropriate communication strategies and recognizing cultural / social differences in communication in healthcare. (This is a conference presentation abstract and not a full work that has been published.)

Good biomedical writing: how to recognize it, how to produce it, how to teach it

Brian Budgell

Communication is the sine qua non of education. However, most chiropractic students and most faculty have never had explicit training in academic communications. In particular, most of us have never been exposed to what we might call evidence-based biomedical communications – that which achieves the objectives of both conveying information and convincing the reader of some argument. This workshop will be a step up from any previous exposure you have had to professional writing – no lectures on introductions, methods, results and discussion; no CONSORT checklist; no mind-numbing statistics. This is about how the best writers write. Using linguistics studies of large collections of the literature, we will see how to construct writing which engages readers. We will look at the techniques which the best writers use to convey information with clarity, and we will see how strategies in word choice, grammar and discourse can be used to influence readers. Specifically, participants will learn what linguistic studies have to say about the norms and outliers of biomedical writing, especially chiropractic writing. We will practice and learn how to identify critical steps in discourse, and then we will practice lightning-fast reviews of recent papers in chiropractic to see how they achieve (or fail to achieve) the authors' objectives. Workshop participants will receive extensive notes with references so that our time together can focus on practising the skills of reading and writing at a higher level. At the end of this workshop, participants can expect to be more insightful readers and more convincing writers. (This is a conference presentation abstract and not a full work that has been published.)

Using a video enhanced observation (VEO) platform to enhance feedback for psychomotor skills training

Danny Clegg, David Byfield, Alister DuRose

VEO is a novel digital platform that allows recording and strategic "tagging" of any video, for any purpose. Originally used for training paramedics in critical response, the platform was modified, enhanced and adapted for specific psychomotor skills training on the chiropractic programme at the University of South Wales (USW) during the 2017-18 academic year. The aim of introducing this technology was to improve proficiency and enhance feedback for students, both inside of and external to the practical classroom setting. VEO in chiropractic education has yielded overwhelmingly positive feedback from the USW cohort, as well as producing internationally recognised, statistically significant positive correlations between student usage and psychomotor VIVA performance outcomes. This workshop aims to demonstrate the applicable functionality of VEO in chiropractic education as both an upskilling and idea-sharing exercise, through the following learning objectives: 1) Explanation and demonstration of the software functionality and capabilities (ideally via VPN and/or HDMI link); 2) Creating a "tagged" video: participants will record a skills demonstration and "tag" it in real time, either using their own digital devices or those which we will provide; 3) Leaving effective feedback: participants will then access a recording made by a participating colleague and post feedback; 4) Preparing a performance report: participants will produce a performance analysis report; 5) In order to maximise the benefit of this session in the time available, participants will be invited to register their interest and email address, prior to the session, so that they can be enrolled onto our guest VEO account (with full privileges) in preparation for the workshop. (This is a conference presentation abstract and not a full work that has been published.)

Toward the development of a standardized chiropractic curriculum for jurisprudence, ethics and business management course content

Brian Gleberzon, Peter McCarthy, Alister Du Rose

Although patient surveys report a high level of familiarity with chiropractic services (i.e. what chiropractors 'do'), respondents also report a very low level of perceived trustworthiness toward the profession. A 2016 Gallup survey reported that, when asked about the profession's honesty and ethics, chiropractic ranked behind all other healthcare professions listed. This Workshop will investigate the interface between chiropractic education, jurisprudence, ethics and business management. A comparative audit of what is currently taught at various chiropractic programs with respect to jurisprudence, ethics and business management (JEB) will be created and, based on consensus opinions of attendees, a standardized or 'model' course curriculum of what ought to be taught throughout all chiropractic programs will be developed. Special attention will be devoted to identifying unethical business practices. Skill-Based Learning Objectives: 1) Create a comparative audit of JEB course content from different chiropractic programs; 2) Appraise JEB curricular content from different chiropractic programs; 3) Identify curricular gaps; 4) Weight relative importance of JEB topics; Create a JEB 'model curriculum' for all chiropractic programs. (This is a conference presentation abstract and not a full work that has been published.)

Examining the accuracy of classification of a redesigned exam: decision consistency studies

Igor Himelfarb

The objective of this workshop is to introduce the audience to the process of verifying decision consistency of a redesigned exam, a requirement specified by Standards for Educational and Psychological Testing (AERA, APA, NCME, 2014). The workshop will introduce the logic of three tactics for conducting a decision consistency study: classical test theory (CTT), item response theory (IRT), and Bayesian methodologies. In an interactive environment, the attendees will brainstorm on how to design a test with an optimal number of items, and how to verify the consistency of the test's performance. Next, in a round-table discussion, participants will have a dialogue on how to verify that the content of the modified test adheres to a pre-established test plan. Finally, participants will be exposed to examples of decision consistency studies that were performed to verify the quality of a reduced version of NBCE's Part I exam. (This is a conference presentation abstract and not a full work that has been published.)

A session with CARL: mentoring within chiropractic institutions

Michelle Holmes, Katherine Pohlman, Alex Breen, Diana De Carvalho, Michele Maiers

Mentorship is a core component of medical education and career success. However, despite its obvious importance, formal mentorship programs in many institutions are non-existent leaving students and faculty at risk of failing to realize their full potential. Unsurprisingly, gaps exist in mentorship for students and fellow colleagues in most chiropractic teaching institutions; with formal mentorship programs deemed unrealistic by competing demands and/or limited resources. The Chiropractic Academy for Research Leadership (CARL) is a successful program that is developing chiropractic research capacity and leadership among early-career researchers through the guidance of three senior researchers. This interview-style workshop with 4 CARL fellows will not only give more details on the program and their experiences, but will describe how they utilize their newly developed skills within their own institutions. While CARL is focused on research, these mentorship skills are transferable to all departments. This workshop will highlight the importance of a mentorship program and demonstrate an innovative way to support mentees without a resource –intensive framework. At the end of this session, attendees will be able to: 1) Discuss the value of a mentorship programs and key principals utilized in the CARL program; 2) Identify the importance and need for more mentorship within chiropractic institutions; 3) Describe a tangible plan to develop sustainable mentorship opportunities at and between chiropractic institutions. (This is a conference presentation abstract and not a full work that has been published.)

Principles in setting doctor: patient boundaries

Stuart Kinsinger

This workshop uses a small group / large group format and engages all participants. Topics include gift giving and receiving, hugging, humour and non-clinical communication (including social media). The rationale for this content is that chiropractors are held to higher standards than the general public and the responsibility to maintain healthy and functional boundaries in all clinical encounters rests exclusively with the practitioner. While boundaries in the doctor-patient relationship exist solely for the patient's safety and protection, the professional also derives benefit from the establishment and maintenance of boundaries, as they safely provide the limits on what is expected by both parties. Simply put, if the patient is protected, the practitioner is protected with this protection being reciprocated to both parties. Why this matters: 1) Our students (and their family members) trust us to educate them in a collegial, respectful and professional environment; 2) Our patients (and their loved ones) trust us to meet their health care needs in a caring, competent and safe environment. Workshop learning objectives: 1) Compare and contrast definitions: boundary, boundary crossing and violation; 2) Consider an ethical foundation for boundary setting and maintenance; 3) Identify grey zones, slippery slopes and challenges to professionalism; 4 Examine common (and uncommon) doctor - patient scenarios. (This is a conference presentation abstract and not a full work that has been published.)

Coaching for competence in collaborative practice: practical resources for the clinical preceptor

Deborah Kopansky-Giles

Background and Rationale: Collaborative practice competencies are essential for safe, effective practice. Accreditation requirements include interprofessional teaching and assessment within competency-based education (CBE) models such as CanMEDS. Preceptors are challenged to identify and assess collaborator competencies in learners. To address these challenges, the Collaborator Role Working Group (CRWG) of the College of Family Physicians of Canada (CFPC) developed practical resources/tools to support a clinical coaching approach in assisting learners in developing collaborative competency. These tools help facilitate these processes and the transition to CBE. Purpose and Learning Objectives Introduction to a coaching model and new resources developed by the CRWG of the CFPC that will support the teaching and assessment of collaborator competencies. Participants reflect on how they are currently teaching and assessing collaborator competencies within their contexts; compare these opportunities with identified best practices for CBE; and consider how these coaching resources can support their teaching and assessment of these competencies. Learning objectives: By the end of this interactive workshop participants will be able to: 1) Identify opportunities to teach and assess the collaborator competencies; 2) Describe CBE strategies for attainment of collaborative competency; 3) Access and apply the CFPC teaching and assessment resources to chiropractic training programs. (This is a conference presentation abstract and not a full work that has been published.)

Let's go to the group guided integration method

Sylvie Laujol, Delphine Sorondo, Nadège Lemuenier

Brief description: Students' motivation is a key factor during lectures. We all experienced situations in which students showed a great interest about the topic, which leaded them to engage in the lesson and contributed to create a motivating and positive learning environment. The main objective of this workshop is to introduce an innovative approach named group guided integration method (GGIM), to enhance student's motivation to learn during lectures. Learning objectives : 1) Define student's motivation; 2) Integrate GGIM principles; Apply GGIM to a lecture. (This is a conference presentation abstract and not a full work that has been published.)

Teaching evidence based clinical practice

John Stites

Evidence based clinical practice (EBCP) has become a dominant movement in healthcare over the last quarter century and is an expectation of the public, policy makers and third-party payers.

Integration of EBCP principles and skills effectively started 12 years ago in some chiropractic colleges in the US. This is an ongoing process with many institutions just beginning the integration. Some chiropractic programs have a strong association with research intensive universities fostering a respect for research and an understanding of critical appraisal. Often missing in these programs is a clear process to convert a clinical dilemma into the patient centered application of a best evidence synthesis. The purpose of this workshop is to enhance the ability of participants to increase EBCP competency at their institutions by capitalizing on the group's experience. Participants will identify both barriers to and best practices in teaching EBCP, devise strategies to better incorporate EBCP concepts and share teaching approaches that they have found effective. This initial part of the workshop will be an overview of the EBCP process with a focus on necessary skills. Small group activities will identify barriers and best practices leading to large group discussion. Additional small group sessions will focus on fostering student curiosity, critical appraisal and innovative teaching moments. By the end of the workshop participants will be able to define the skills needed to practice EBCP, identify 2 or more strategies to improve EBCP education in their institutions, and demonstrate a teaching moment to convey an EBCP concept (This is a conference presentation abstract and not a full work that has been published.)