Abstracts from 2020 INCAM Research Symposium: 

Integrative Health at the Crossroads: 
Learning from the Past, Co-Creating the Future

Hosted by the Centre for Integrative Medicine and the Department of Community Health and Epidemiology of the University of Saskatchewan, Saskatoon, SK Canada 
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Scientific Committee

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Abstract: The following are abstracts of research presentations given at the 11th INCAM Research Symposium. The theme for this year’s conference was “Integrative Health at the Crossroads: Learning from the Past, Co-Creating the Future” which was held as a virtual conference on November 12-13 and 16-17, 2020, hosted by the Centre for Integrative Medicine and the Department of Community Health and Epidemiology of the University of Saskatchewan, Saskatoon, SK. The abstracts are grouped under the categories of oral or poster presentation based on how they were presented at the Symposium. For more information, please visit the INCAM Chapter page of https://iscmr.org

Keywords: complementary and alternative medicine, integrative health care and medicine, conference abstracts, professional practice gaps, research

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## Contents

<table>
<thead>
<tr>
<th>Oral Presentation Abstracts</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Traditional, Complementary, Alternative and Integrative Medicine in COVID - The effect of</td>
<td>6</td>
</tr>
<tr>
<td>Echinacea spp. on the prevention or treatment of COVID-19 and other respiratory tract infections in humans: a rapid review</td>
<td></td>
</tr>
<tr>
<td>Monique Aucoin</td>
<td></td>
</tr>
<tr>
<td>2. <strong>Mental Health</strong> - Dietary Counseling in Schizophrenia Spectrum Disorders: Creation and Evaluation of an Evidence-Informed Psychoeducational Tool</td>
<td>7</td>
</tr>
<tr>
<td>Monique Aucoin</td>
<td></td>
</tr>
<tr>
<td>3. <strong>Practice Issues and Patient Reported Outcome Measures (PROs)</strong> - Evidence-Based Practice in Complementary Medicine (EPICENTRE) Project – Canadian Survey Results from the Naturopathic Profession</td>
<td>8</td>
</tr>
<tr>
<td>Matthew Leach</td>
<td></td>
</tr>
<tr>
<td>4. <strong>Oncology</strong> - Pioneering Pre- and Post-Operative Integrative Care to Improve Thoracic Cancer Quality of Care - The Thoracic Peri-Operative Integrative Surgical Care Evaluation (POISE) Trial - Stage I</td>
<td>9</td>
</tr>
<tr>
<td>Dugald Sedy</td>
<td></td>
</tr>
<tr>
<td>5. <strong>Oncology</strong> - A Prospective Outcomes Pilot Evaluation of Inspire Now – A Program for People with Lung Cancer</td>
<td>10</td>
</tr>
<tr>
<td>Mark Legacy</td>
<td></td>
</tr>
<tr>
<td>6. <strong>Oncology</strong> - Creating Patient and Healthcare Provider Resources: Intravenous Vitamin C in Cancer Care</td>
<td>11</td>
</tr>
<tr>
<td>Ellen Conte</td>
<td></td>
</tr>
<tr>
<td>7. <strong>Practice Issues and Patient Reported Outcome Measures (PROs)</strong> - Public consultation on interprofessional communication and letter writing resource</td>
<td>12</td>
</tr>
<tr>
<td>janet Nguyen</td>
<td></td>
</tr>
<tr>
<td>8. <strong>Mental Health</strong> - Understanding the Role of Indigenous Cultural Knowledge Systems in Mental Wellness: A Narrative Inquiry</td>
<td>13</td>
</tr>
<tr>
<td>Cheryl Currie</td>
<td></td>
</tr>
<tr>
<td>9. <strong>Evaluating Innovations</strong> - Exploring the effects of standardized soft tissue mobilization on the viscoelastic properties, pressure threshold and touch threshold of the caesarean section scar</td>
<td>14</td>
</tr>
<tr>
<td>Isabelle Gilbert</td>
<td></td>
</tr>
<tr>
<td>10. <strong>Mental Health</strong> - Multiple Iterations of a Yoga-Based Training Program for Education and Healthcare Professionals’ Psychological Health</td>
<td>15</td>
</tr>
<tr>
<td>Natalie L. Dyer</td>
<td></td>
</tr>
<tr>
<td>11. <strong>Practice Issues and Patient Reported Outcome Measures (PROs)</strong> - A Qualitative Evaluation of the Subjective Experience of Receiving a Reiki Session</td>
<td>16</td>
</tr>
<tr>
<td>Natalie Dyer</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Title</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>12</td>
<td>Evaluating Innovations - Adapting a Mindfulness Program for Youth at an Alternative School: A Process Evaluation</td>
</tr>
<tr>
<td>13</td>
<td>Traditional, Complementary, Alternative and Integrative Medicine in COVID - Choose your shortcuts wisely: COVID-19 rapid reviews of traditional, complementary and integrative medicine.</td>
</tr>
<tr>
<td>14</td>
<td>Traditional, Complementary, Alternative and Integrative Medicine in COVID - Zinc for the prevention and treatment of SARS-CoV-2 and other acute viral respiratory infections – a living rapid review and meta-analysis.</td>
</tr>
<tr>
<td>15</td>
<td>Evaluating Innovations - Incorporating stakeholders’ perspectives in the development phase of an academic integrative healthcare centre in Australia.</td>
</tr>
<tr>
<td>16</td>
<td>Practice Issues and Patient Reported Outcome Measures (PROs) - Telemedicine use amongst homeopaths and naturopaths in Ontario Canada</td>
</tr>
<tr>
<td>17</td>
<td>Traditional, Complementary, Alternative and Integrative Medicine in COVID - Ambiguity, uncertainty, and moral distress expressed by massage therapists participating in Project COPE: A Preliminary qualitative analysis of submitted Vlogs</td>
</tr>
<tr>
<td>18</td>
<td>Oncology - Branched-chain amino acids use during the peri-operative period in cancer patients: a systematic review and meta-analysis</td>
</tr>
<tr>
<td>19</td>
<td>Mental Health - Examining changes in posttraumatic stress disorder symptoms and substance use among a sample of Canadian veterans working with service dogs: An exploratory longitudinal study</td>
</tr>
<tr>
<td>20</td>
<td>Poster Presentation Abstracts</td>
</tr>
<tr>
<td>21</td>
<td>The Use of Natural Health Products and Health-Related Quality of Life among Women with Breast Cancer</td>
</tr>
<tr>
<td>22</td>
<td>Evaluating a yoga therapy program for adults diagnosed with cancer: A single-subject repeated measures study</td>
</tr>
</tbody>
</table>
22 Effect of Osteopathic Treatment on Perceived Pain, Isometric Strength and Joint Mobility Following Eccentric Loading
Lynsey Dobish

23 A Cross-Sectional Survey and Quality Assessment of Websites Providing Information at the Intersection of Complementary and Alternative Medicine and Low Back Pain
Kevin Gilotra

24 What Web-Based Online Resources Provide Patient Information about Adverse Interactions or Side Effects Associated with Complementary and Alternative Medicine? A Systematic Search and Narrative Review
Harmy Thakar

25 Computational binding analysis of turmeric curcuminoids with EphA2 receptor for potential use in glioblastoma treatment
Sai Batchu

26 What complementary and alternative medicine therapy recommendations exist across clinical practice guidelines for low back pain? A systematic review
Uzair Mohiuddin

27 Effect of Probiotics Supplementation on CD4+ T Cell Counts and Inflammation in HIV-Infected Adults: A Systematic Review and Meta-analysis
Min Wen

28 Are we Supporting the Well-Being of Medical Students?: A Systematic Review
Sasha Monteiro

29 Effects of a myofascial technique on the structure and biomechanical properties of the thoracolumbar fascia in chronic low back pain adults assessed by sonoelastography and myotonometry: a study protocol.
Karine Devantéry

30 The Quality of Information about Ephedra sinica Available on Websites of Online Vendors selling to Canadian Consumers
Ann Marwaha

31 A Snapshot Taken at the Intersection of Coronavirus Disease 2019 (COVID-19) and Traditional, Integrative, and Complementary and Alternative Medicine: A Bibliometric Analysis of Research Trends
Jeremy Y. Ng

32 Honeybee products for the prevention, treatment and/or recovery of COVID-19 and other coronavirus-related respiratory tract infections: A living rapid review.
Susan Arentz

33 An Academic Integrative Healthcare Centre: Protocol for Logitudinal Evaluation
Suzanne Grant
34  Moral Distress of Healthcare Workers During an Active Pandemic: Preliminary results from Project COPE
   Chloe Wilson

35  Project COPE: Chronicling healthcare prOviders Pandemic Experiences: A Descriptive Study of Essential and Non-Essential Health Care Workers During an Active Pandemic
   Ann Blair Kennedy

36  An Assessment of Common Comorbid Conditions and Health Concerns in Fibromyalgia Patients: A Retrospective Medical Record Review.
   Christlynn Guerin

37  A systematic review of probiotics use during oncological surgery
   Elise Cogo
Oral Presentation Abstracts

1 - The effect of Echinacea spp. on the prevention or treatment of COVID-19 and other respiratory tract infections in humans: a rapid review

Monique Aucoin¹, Kieran Cooley¹,²,³,⁴, Paul Saunders¹, Jenny Care², Dennis Anheyer⁵, Daen Medina²,⁶, Valentina Cardozo¹, Daniella Remy¹, Nicole Hannan⁷, Anna Garber⁷

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Background:
COVID-19 is the respiratory illness cause by a novel coronavirus which has caused a worldwide pandemic in 2020. Echinacea species have been used for a range of illnesses and actions, including immune support.

Objectives:
A rapid review was undertaken to assess the existing literature on the use of Echinacea in the prevention and treatment of COVID-19 and other acute respiratory infections (ARI). Additionally, the review sought to identify any evidence related to whether Echinacea supplementation could increase the risk of cytokine storm in COVID-19 patients based on the changes in cytokine levels observed in human clinical trials.

Methods:
The databases Medline (Ovid), AMED (Ovid), CINAHL (EBSCO) and EMBASE (Ovid) were searched. Screening and extraction were completed by one reviewer and checked for accuracy by a second reviewer.

Results:
Seventeen studies reporting on efficacy and 12 studies reporting on cytokine outcomes met criteria for inclusion. In studies where Echinacea was used at the onset of infection, five of nine reported a significant reduction in symptom severity and five of seven reported a significant reduction in duration of illness. Few adverse events from the use of Echinacea were reported and no human trials could be located reporting evidence of cytokine storm. Changes in cytokine levels in response to Echinacea supplementation were largely consistent with a decrease in the pro-inflammatory cytokines that play a role in the progression of cytokine storm and Acute Respiratory Distress Syndrome (ARDS).

Conclusions
Echinacea supplementation may assist with the symptoms of ARI, particularly when administered at the first sign of infection; however, no studies using Echinacea in the prevention or treatment of conditions similar to COVID-19 have been identified. While there is currently no research on the
therapeutic effects of *Echinacea* in the management of cytokine storm, the anti-inflammatory effects reported suggest that further research is warranted.

2 - Evidence-Based Practice in Complementary Medicine (EPICENTRE) Project – Canadian Survey Results from the Naturopathic Profession

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**Background:**
Evidence-based practice (EBP) is a framework designed to improve clinical practice through a scientific approach to identifying and answering questions about the effectiveness of different components of healthcare. This approach expands the type of knowledge used in clinical encounters to include use of the best available evidence in combination with clinical expertise and patient preferences. Despite the advantages of EBP, there are concerns that complementary medicine (CM) practitioners may be cautious about its use.

**Objectives:**
The objective of this study was to understand and describe attitudes towards EBP, perceived levels of skill in EBP, EBP training, barriers and enablers to EBP uptake and demographic details of Canadian Naturopathic Doctors/Physicians and Naturopaths (NDs).

**Methods:**
The EPICENTRE study is a descriptive cross-sectional survey. It was distributed to CM practitioners in Australia, New Zealand, Switzerland, Canada and the United States. Here we present the findings of the Canadian survey, which was distributed to Canadian NDs. National and provincial associations disseminated the study invitation to their members and accredited naturopathic colleges invited their alumni. The validated Evidence-Based Practice Attitudes and Utilization SurvEy (EBASE) was self-administered using SurveyMonkey.

**Results:**
The survey was completed by 253 Canadian NDs (76% female, 75% aged 30-49 years). Participant attitudes toward EBP were predominantly positive, with three-quarters of participants indicating that >50% of their practice was informed by clinical research evidence. More than one-half of participants self-reported a medium-high to high level of skill across most EBP-related actions. The most notable barriers to EBP uptake were lack of clinical evidence in naturopathy, and lack of time. Self-selection and a response rate of ~10% are limitations.

**Conclusions**
These findings may be used to guide potential strategies to improve EBP uptake in NDs or CM with the expectation of improving the quality of care and patient outcomes.
3 - Dietary Counselling in Schizophrenia Spectrum Disorders: Creation and Evaluation of an Evidence-Informed Psychoeducational Tool

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Background:
Diet has been identified as a modifiable risk factor for schizophrenia spectrum disorders however, clinical use of dietary modification remains limited. A recent scoping review conducted by the authors identified all of the scientific literature on this topic.

Objectives:
Using the results of the review, this project’s objective is to create and evaluate an evidence-based psychoeducational tool for front-line clinicians and patients to use in implementing dietary recommendations as part of clinical treatment of psychotic disorders along with a brief clinician guidance document.

Methods:
The tool creation and evaluation are guided by a number of strategies, theoretical frameworks and established recommendations for nutrition handouts, including Pender’s health promotion model. In order to ensure that this diet tool will meet the needs of clinicians and patient, we will undertake a process to evaluate the tool through a focus groups with clinicians (four) and interviews with individuals with lived experience (six to eight). Feedback with be gathered to gauge if the tool is helpful, feasible to implement, and to identify any obstacles, challenges or recommendations. The focus group and interview sessions will be audio recorded with participant permission, with subsequent review and thematic, inductive analysis. Recordings will be transcribed and analysed by two investigators independently; final decisions on themes and revisions will occur based on consensus discussion. The tool will be revised according to feedback and a brief second interview will allow for feedback on the revised version.

Results and Conclusions:
The psychoeducational tool and guide have been drafted and the focus group evaluation and revision process will take place shortly, delayed by amendments to the research protocol required by COVID-19. Themes, process and the final tool will be presented at the INCAM Conference.
4 - Pioneering Pre- and Post-Operative Integrative Care to Improve Thoracic Cancer Quality of Care - The Thoracic Peri-Operative Integrative Surgical Care Evaluation (POISE) Trial - Stage I

Dugald Seely¹,²,³, Mark Legacy¹,², Anna Fazekas⁴, Ellen Conte¹,², Edita Delic⁵, Caitlin Anstee⁶, Timothy Asmis³, Rebecca Auer³,⁵, Kednapa Thavorn³, Dean Fergusson³, Tim Ramsay⁷, Christian Finley⁴, Salamaan Kanji³, Andrew Seely³,⁵

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Background:
Despite enormous advances in thoracic surgery and oncology, patients still experience detrimental effects to health-related quality of life. This three-stage project has the overarching goal of improving care for thoracic cancer patients using an integrative approach to care. In stage I, we evaluated the safety and feasibility of delivering integrative care interventions in a pragmatic study.

Objectives:
(1) Determine the safety and feasibility of the study protocol, (2) assess compliance with study interventions, (3) assess communication between practitioners, (4) evaluate the qualitative experience of care, (5) refine the interventions.

Methods:
In this single-arm study, 22 participants undergoing complete resection for lung, gastric, or esophageal cancer were enrolled and followed for one year post-surgery. Participants received usual hospital care combined with complementary care administered by a naturopathic doctor (ND). Complementary care included natural health products (NHPs), nutrition guidance, physical activity recommendations, and psychological practices. Feasibility was determined by assessment completion rates and appointment attendance; compliance was assessed through pill counts and subjective ND ratings; qualitative experiences were captured through semi-structured interviews; safety was determined by adverse events (AEs); interventions were refined based on clinical experience and patient feedback.

Results:
14 of 22 participants successfully completed the study; 4 were screen fails, 1 died before starting the study, and 3 withdrew. ND and hospital visits were well attended (89% and 96%, respectively). Questionnaire completion rate was 100%. Mean NHP compliance was 76.5%, ranging from 42.4% - 96.2% for individual NHPs. No serious or severe AEs related to the intervention were reported. There were no communication barriers, and qualitative interviews provided rich data regarding patient experiences.

Conclusions:
The study protocol was feasible and safe. The project will progress to stage II, a pilot randomized control trial, with an amended protocol based on data collected from stage I.
5 - A Prospective Outcomes Pilot Evaluation of Inspire Now – A Program for People with Lung Cancer

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Background:
Lung cancer is the leading cause of cancer mortality in Canada, yet is often under-supported. To address the many unmet supportive care needs, a six week program, called Inspire Now, was developed.

Objectives:
(1) evaluate the feasibility of the program and its evaluation; (2) pilot the collection of patient-reported outcomes; (3) identify outcomes that may be positively influenced; (4) inform program modifications.

Methods:
Participants were recruited at the first session of Inspire Now for a single-arm pilot study. The primary outcome was the feasibility of the program and its evaluation. Secondary outcomes included within-person changes in Functional Assessment of Cancer Therapy – Lung (FACT-L) and Measure Yourself Concerns and Wellbeing (MYCaW), and program satisfaction and qualitative experiences of both participants and facilitators through internally-developed questionnaires and semi-structured interviews. Analysis was primarily descriptive, within person changes in FACT-L and MYCaW were analyzed using the Wilcoxon signed-rank test, qualitative data was assessed for common themes.

Results:
The program and its evaluation were feasible; eight of nine (89%) participants consented to the study, median attendance was 6 of 6 sessions (IQR 4.5-6), and questionnaire completion was 100% at baseline and 75% at follow-up. There were clinically meaningful improvements in MYCaW concern 1 (-1.2, 95% CI -2.0 to -0.4) and overall wellbeing (-0.9, 95% CI -2.1 – 0.4). Seven of eight FACT-L sub-sections trended towards improvement, with absolute changes ranging from -1.7 to 10.8%. Participant feedback was overwhelmingly positive, and qualitative feedback indicated that the support and social interactions were highly valued.

Conclusions:
The Inspire Now program and its evaluation were feasible. Participants responded positively to the program. Findings will inform changes to future sessions, and analysis of multiple sessions is planned.
6 - Creating Patient and Healthcare Provider Resources: Intravenous Vitamin C in Cancer Care

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Background:
Complementary medicine, including intravenous vitamin C (IVC), is commonly considered by people with cancer. Patients and healthcare providers often lack knowledge in CAM therapies. Evidence-based information written appropriately for the end-user can serve as an educational and decision making tool for patients and clinicians.

Objectives:
(1) To systematically evaluate the clinical research for intravenous vitamin C in cancer care, (2) update a patient and healthcare provider resource for IVC in cancer, and (3) trial and refine the methodology for creating these resources.

Methods:
A systematic literature search of IVC in cancer was performed by a medical librarian. Medline and Cochrane databases were searched from January 2013-March 2019 to update the previous search. All English-language, human studies of IVC in people with cancer were included. Data obtained was used to update the patient and healthcare provider monographs.

Results:
The search identified 153 papers, of which 36 met the inclusion criteria. Studies included 3 systematic reviews, 13 clinical trials, 7 observational studies, 10 case reports, and 2 stability and safety reports. Since inception, there are 14 clinical trials and two preliminary trial results for IVC in cancer, including 255 patients (242 in IVC arms). Only one study was a randomized controlled trial, and none were placebo-controlled. IVC is generally safe and well tolerated at doses up to 1.5g/kg three times weekly. Some but not all studies have found improvements in quality of life and side effect management, particularly during chemotherapy. Evidence for tumour response and survival is limited and inconclusive. Data was incorporated into a 2-page patient resource, and an 18-page healthcare provider resource.

Conclusions
Research on the use of IVC in cancer care is limited. IVC is generally safe and may improve QoL. Creating evidence-based resources is feasible and the process will be replicated for other CAM therapies.
7 - Public consultation on interprofessional communication and letter writing resource

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Background:
In response to calls from integrative medicine (IM) doctors and complementary medicine (CM) practitioners, the Australasian Integrative Medicine Association developed draft guiding principles and letter writing templates to support interprofessional communication (IPC).

Objectives:
To obtain stakeholder feedback on the IPC resources, and explore practitioners' attitudes towards IPC, and writing letters of correspondence and interest in continuing professional development (CPD).

Methods:
This cross-sectional study reports the feedback from 1) an online public consultation survey and 2) paper surveys collected from two IPC CPD activities. The datasets were merged, and quantitative and qualitative data were triangulated to identify meta-themes.

Results:
Of the 21 IM doctors, 11 allied health, 69 CM practitioners and 6 lay community, most thought IPC is very important (n=95/117; 81%). Many strongly agreed the resources were informative (n=61/119; 51%), understandable (n = 49/119; 41%), and clinically relevant (n=56/117; 48%). Participants reported wide variations in their frequency of letter-writing with other practitioner types. (something about who was corresponding with whom, or not). Key IPC themes identified were the importance of continuity of care, clarity of communication and professional practice. CPD participants were more interested in further IPC training (p=0.001).

Conclusions
The IPC resources affirm the role of formal communication pathways to support coordinated, patient-centred and multidisciplinary care.
8 - Understanding the Role of Indigenous Cultural Knowledge Systems in Mental Wellness: A Narrative Inquiry

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Background:
Indigenous cultural continuity has been shown to promote mental wellness and reduce substance misuse within Indigenous populations in many parts of the world. A gap in our understanding are the specific ways Indigenous Peoples may engage traditional healing methods to promote mental wellness, and how traditional Indigenous mental wellness concepts and practices are received by mainstream mental health practitioners.

Objectives:
To understand: (1) the ways in which Indigenous adults living in an a small urban area in southern Alberta may engage traditional healing methods to promote mental wellness, and (2) how traditional Indigenous mental wellness practices are received by mainstream mental health practitioners.

Methods:
In-person qualitative interviews were conducted with 12 Indigenous adults who had engaged a mainstream mental health service in the past year and lived in southern Alberta. Narrative inquiry and thematic analysis were used to characterize qualitative data, with data coded independently by two co-authors and compared for reliability.

Results:
Participants engaged in a variety of cultural practices to promote mental wellness, and described the sense of guidance, support, connection and cleansing that these practices provided. Participants expressed the need for mainstream practices that sought a deeper understanding of the role that life experiences play mental health. While an integrated Indigenous and mainstream model of care was desired, most participants were not comfortable sharing their cultural wellness practices with mainstream mental health practitioners. Those that did often felt traditional Indigenous mental wellness concepts and practices was not well received or respected within mainstream models of care.

Conclusions:
The findings of this exploratory study suggest the mainstream mental health focus on diagnosis and medications were not serving Indigenous adults well. Indigenous adults expressed a need for integrative models of mental health care.
9 - Exploring the effects of standardized soft tissue mobilization on the viscoelastic properties, pressure threshold and touch threshold of the caesarean section scar

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Background:
One objective of soft tissue manual therapy applied to Caesarean section scars (C-section) is to improve the biomechanical properties of the scarred skin and reduce pain. However, research supporting this effect is lacking.

Objectives:
The objective of this study was to characterize and explore the changes in scar viscoelastic properties, pressure threshold, and touch threshold before and after a soft tissue manual therapy session, immediate and after one week compared to unscarred skin.

Methods:
We conducted a proof of concept, exploratory and descriptive clinical trial evaluating the impact of a one-week course of soft tissue manual therapy. Thirty-six participants consented to participate and thirty-two completed the study. Experienced osteopath provided soft tissue manual treatment 1x/week for 2 weeks. Scar site characteristics were evaluated weekly before and after soft tissue manual treatment including viscoelastic properties (MyotonPRO), pressure threshold (algometer) and touch threshold (Von Frey filaments).

Results:
At the baseline, C-section and unscarred skin are different on tone, stiffness, elongation time, mechanical relaxation time and pressure threshold (p <0.05). There was no significant difference for elasticity (p=0.985) and touch threshold (p=0.394). At cumulative time, there was a significant difference in tone, elasticity, elongation time, mechanical relaxation time and touch threshold (p <0.05) between C-section and unscarred skin. There was no significant different at cumulative time for stiffness (p=0.362) and pressure threshold (p=0.843). C-section scars evaluation immediately before and after soft tissue manual therapy at each time point revealed changes for tone, elasticity, stiffness, mechanical stress time, pressure threshold and touch threshold (p <0.05). No significant difference was revealed for elongation time (p=0.094).

Conclusions:
The Caesarean section scar would be different from unscarred skin in certain viscoelastic properties and certain pain thresholds such as tone, stiffness and pressure pain threshold. However, the Caesarean section scar and unscarred skin would not be different on their elasticity and touch threshold. This study shows that 2 sessions of soft tissue manual therapy have an effect on the C-section viscoelastic
properties and pain threshold. These findings support that soft tissue manual therapy can improve the biomechanical properties of the scared skin and certain types of pain.

10 - Multiple Iterations of a Yoga-Based Training Program for Education and Healthcare Professionals’ Psychological Health

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Background:
Frontline professionals from the healthcare and education sectors often experience chronic workplace stress, which increases their risk of developing psychological and physical health problems.

Objectives:
Our purpose was to assess changes in psychological health in education and healthcare professionals that attended different versions of a yoga-based training program for professionals (RISE).

Methods:
The RISE program includes yoga, meditation, didactic and experiential activities. We examined 4 separate studies of RISE: 1) A single arm trial of a 3-day residential RISE program for urban education professionals from New York City (N = 74); 2) A waitlist controlled trial of a 3-day residential RISE program for rural education professionals from Massachusetts (N = 30); 3) A single arm trial of a 6-week on-site program for Harvard attending physicians (N = 12); and 4) A waitlist controlled trial of a 6-week on-site program for Harvard resident physicians (N = 33). Self-report measures of psychological health were completed before (baseline), immediately after (post), and two months after RISE (follow-up).

Results:
Participants from all studies reported improvements in stress from baseline to post and improvements in mindfulness from baseline to follow-up (all p values < 0.05). Education professionals from both studies showed improvements in stress, mindfulness, empowerment, and self-compassion from baseline to post; and improvements in negative affect, mindfulness, empowerment, and self-compassion from baseline to follow-up (all p values < 0.05). Healthcare professionals from both studies showed improvements in stress, anxiety, depression, interpersonal disengagement and burnout from baseline to post; and improvements in interpersonal disengagement and mindfulness from baseline to follow-up (all p values < 0.05).

Conclusions
Overall results from all four studies suggest that RISE improves psychological health in education and healthcare professionals. On-going research continues to investigate RISE in different professional populations with various programming lengths, intensities, and venues.
11 - A Qualitative Evaluation of the Subjective Experience of Receiving a Reiki Session

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Background:
Reiki is a form of biofield therapy based on the principle that energy fields and information surrounding living systems can be influenced to stimulate healing responses. Despite its widespread use, there is little research investigating Reiki’s effectiveness in real-world settings, where Reiki sessions often occur.

Objectives:
The purpose of this large-scale study was to examine the qualitative experience of individuals receiving Reiki at private practices throughout the United States.

Methods:
This study is the qualitative aspect of a large-scale study that showed that a single session of Reiki improved quantitative measures of psychological and physical health symptoms. Reiki Masters (N = 99) conducted Reiki sessions in person at their private practice, with each session lasting between 45-90 minutes. The Reiki Masters’ clients were asked why they were seeking the Reiki session and to describe what they experienced during the session. A random sample of fifty reports was extracted from the total sample (N = 1284) to identify emergent themes using a grounded theory approach.

Results:
Individuals reported that they sought the Reiki session for symptom relief, relaxation, to improve emotional and physical health, and/or curiosity. Qualitative analysis using grounded theory revealed seven major themes: (1) deep relaxation; (2) mental clarity and peace; (3) positive emotions and emotional healing; (4) altered perceptions; (5) spiritual experience or journey; (6) deep breathing; and (7) symptom relief. Subthemes for the altered perceptions were visual perceptions such as color and light; body sensations including floating, twitching, waves of energy, tingling, heat/warmth; and changes in the perception of time.

Conclusions:
These findings suggest that Reiki facilitates eliciting the relaxation response and alters emotions and perception in such a way as to facilitate a healing experience. Future research will compare the experience of Reiki to sham Reiki and other mind-body healing practices such as qigong.
12 - Adapting a Mindfulness Program for Youth at an Alternative School: A Process Evaluation

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Background:
Childhood stress has been linked to an increase in cancer-risk behaviours and cancer rates. Addressing health-risk behaviours in adolescence can create healthy lifelong habits. Mindfulness focuses on cultivating present-moment awareness and may offer a healthy coping strategy to youth. Using technology to deliver mindfulness offers practices youth can access on their own.

Objectives:
This study focused on process evaluation of a mindfulness intervention with adolescents at an alternative school. The main objectives were to understand: (1) program adaptation, (2) youth engagement, and (3) youth experience.

Methods:
An evidence-based mindfulness program, Learning to BREATHE: A Mindfulness Curriculum for Adolescents, was adapted to integrate technology and suit an alternative school audience. Program activities were chosen to suit the group, and facilitators shared safety messages and ground rules regularly. Seventeen grade 7-9 students attended eight 90-minute classroom sessions. The process evaluation included data from participant surveys and interviews, attendance, observer and facilitator fidelity forms, and field notes. A mixed methods approach was used to assess program adaptations and youth engagement. Participant interviews were examined using phenomenological analysis to understand experiences of youth.

Results:
Youth experienced mindfulness as a quiet time, novel to the typical busyness of their days. Understanding of mindfulness expanded, and it was described as a tool for relaxation and coping with life stressors. Technology was successfully integrated into the program through mindfulness applications (apps). Over half of the practices were delivered using apps and these were well-received by youth. Low school attendance affected the reach of the intervention.

Conclusions:
Findings suggest the program increased youth understanding and interest in mindfulness, and that blended in-person and technology-driven delivery of mindfulness training was accepted and embraced by the youth in the program. Findings will be used to inform future cohort of a larger trial examining mindfulness and cancer-risk behaviour among youth.
13 - Choose your shortcuts wisely: COVID-19 rapid reviews of traditional, complementary and integrative medicine.

Jennifer Hunter¹, Susan Arentz², Joshua Goldenberg², Goyan Yang¹, Jennifer Beardsley², Myeong Soo Lee³, Stephen Myers¹,⁴

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Background:
The COVID-19 pandemic has led to an explosion of rapid reviews (RRs) of interventions for prevention and treatment of SARS-CoV-2. RRs are geared towards providing time sensitive answers for decision-makers and ideally, strike a balance between rigour and rapidity to minimise bias and optimise transparency, within specified constraints. Substantive guidance on how to strike that balance is readily available. Restrictions can be applied to the scope, methods, and reporting of results to prioritise speed.

Objectives:
The purpose of this presentation is to clarify the minimum standards required for rapid reviews (RRs) of traditional, complementary and integrative medicine (TCIM), in the context of the COVID-19 pandemic, and guide TCIM researchers to ensure new RRs are of a minimum acceptable quality to maximise their credibility and impact.

Methods:
The methods and reporting standards of a convenience sample of COVID-19 RR registered protocols, and RRs published in the first six-months of 2020, were appraised against a purpose-specific 9 item reporting checklist, reflecting recommended minimum scientific requirements. Included were all RR protocols evaluating traditional, complementary, and integrative medicine (TCIM) registered on PROSPERO, and all RRs indexed on PubMed or published on the Oxford COVID-19 Evidence Service. Findings were synthesised and narrated in the context of methodological considerations for conducting and reporting RRs of TCIM.

Results:
Five RR protocols of TCIM and 16 RRs, (five investigating efficacies of TCIM interventions) were included. There was wide variation in RR methods and reporting standards. All five RRs that evaluated TCIM had the lowest reporting standards that limited reproducibility and transparency. Despite accepted recommendations, only two published RRs registered or published a protocol.

Conclusions
Specific research disciplines, such as TCIM, have uniqueness’s that may lead to unacceptable outputs, if minimum methodological standards are not applied. The recommended minimum requirements will optimise the credibility of RRs of TCIM and limit the risk of prematurely disregarding potentially effective interventions.
14 - Zinc for the prevention and treatment of SARS-CoV-2 and other acute viral respiratory infections – a living rapid review and meta-analysis.

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Background:
The global COVID-19 pandemic has prompted an urgent search for management options. Older adults and people with chronic diseases experience worse outcomes from SARS-CoV-2 infections. Both populations are associated with zinc deficiency/insufficiency.

Objectives:
This study aims to systematically update evidence on the efficacy of zinc for preventing and/or treating SARS-CoV-2 and other viral acute respiratory infections (ARI) in people of any age, gender, or zinc status.

Methods:
A rapid review (RR) was commenced on 27 April 2020 following protocol registration with PROSPERO: CRD42020182044. Included were randomised and quasi-randomised controlled trials. Eight major databases (one Chinese) and four clinical trial registries (one Chinese) were searched. RR constraints included single reviewers for many tasks, limiting meta-analyses and risk of bias appraisals to primary outcomes in a staged approach beginning with priority populations, and for non-COVID-19 evidence, excluding grey literature, not updating searches and not contacting authors. Random-effects modelling for the meta-analyses and the GRADE approach for the summary of findings are used. Subgroup analyses includes different zinc interventions and at-risk populations.

Results:
The search yielded 1,627 records. Included were 124 RCTs (87 published in English and 36 in Chinese). As of 7 July 2020, specific to SARS-CoV-2, four ongoing RCTs were identified and 15 were excluded as zinc was combined with other nutraceuticals (most commonly vitamin C and D) or hydroxychloroquine. Of the 120 published RCTs, 33 were for prevention (29 paediatric, 3 adult, 1 older adult) and 79 were for treatment (59 paediatric, 20 adult). A wide range of zinc formulations and dosages were evaluated, including one SARS-CoV-2 RCT evaluating intravenous zinc.

Conclusions
Pending results of the SARS-CoV-2 clinical trials and meta-analyses of indirect evidence, assessment and normalisation of zinc status would be appropriate as part of SARS-CoV-2 management. This living rapid review will be updated in October 2020.
15 - Incorporating stakeholders’ perspectives in the development phase of an academic integrative healthcare centre in Australia

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Background:
Stakeholders involvement and engagement is recognised as an important component of healthcare planning.

Methods:
A community-based participatory research design was used to engage stakeholders in the development stage of an academic integrative healthcare (IHC) centre. Three qualitative sub-studies: 1) focus groups interviews with 19 community members, 2) semi-structured interviews with eight general practitioners and five primary care clinic managers and 3) semi-structured interviews with eight medical specialists were conducted. A thematic analysis of each sub-study was first undertaken, followed by a triangulation analysis to identify and interrogate the meta-themes.

Results:
Key meta-themes were 1) the need for IHC, 2) safety and quality, and 3) credibility and trust. The strongest congruence across all sub-studies was the importance of optimising patient safety and the credibility that an academic setting brings to IHC. Community members called for proactive teamwork and truly integrative care that promoted self-efficacy and shared decision making. The need for conventional medical oversight (be it from a doctor or nurse) and the importance of evidence-based medicine and research were strongly emphasised by the primary and secondary care stakeholders. All groups discussed various aspects of clinical governance, interprofessional communication and multi-disciplinary care. There was a recognised need for improving IHC access for the underserved and more non-pharmacological options to help with the growing burden of chronic disease. Stakeholders welcomed the concept of an academic IHC centre in their local district that filled healthcare gaps through the provision of adjunctive health services that are delivered by expert IHC practitioners.

Conclusions:
The staged approach to the analysis fostered a greater appreciation of the nuances of the three stakeholder groups. These findings will be used to refine the model of care for the centre that will be augmented by implementation research focusing on IHC practitioners and patients.
16 - Telemedicine use amongst homeopaths and naturopaths in Ontario Canada

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(¹ University of Toronto, ² Facebook)

Background:
Telemedicine, defined as the use of online and telephone-based technologies in health service delivery, holds great potential for the delivery of care in both conventional biomedical care and in traditional, complementary, and alternative medicine. These technologies have promise for reaching underserved populations, providing access to non-local specialists, and being convenient for patients.

Objectives:
This research aims to investigate the extent of, rationale for, as well as strengths and challenges associated with, telemedicine-based consulting by homeopaths and naturopaths.

Methods:
Using a census-based approach, state-regulated homeopaths and naturopathic doctors in Ontario, Canada were surveyed using the online Qualtrics survey tool. Survey questions captured demographic and socio-economic data of respondents as well as opinions regarding respondents’ motivations behind telemedicine use.

Results:
The survey was conducted between October 2018-January 2019. 183 homeopaths and 366 naturopaths responded to the survey, representing overall response rates of 27.7% and 24.1% respectively. Among homeopath respondents, 63.4% reported having performed a homeopathic consultation with a patient using face-to-face online video in the previous 6 months. In contrast, only 32.7% of naturopathic respondents reported having performed a consultation with a patient using online video in the previous 6 months. There were no significant differences in use of telemedicine with regards to gender, geographical location, or age. There was an association between income and telemedicine use amongst naturopaths. The best fit regression model of motivational factors for both professions comprised practitioners’ attitude towards telemedicine and their perceived ability to use telemedicine (Nagelkerke R-squared=.281).

Conclusions
Face-to-face online video is used by more than half of homeopaths in Ontario, Canada. Ontario homeopaths are nearly twice as likely to engage in online video consultations as naturopaths. Attitude towards, and perceived ability to use telemedicine were associated with telemedicine use.
17 - Ambiguity, uncertainty, and moral distress expressed by massage therapists participating in Project COPE: A Preliminary qualitative analysis of submitted Vlogs

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Background:
Exploring the literature on natural disasters, epidemics, and terrorist attacks provides insights into suggested ways to help healthcare workers cope; one standard supportive measure consistently recommended for these workers is massage therapy. Yet the perceptions and experiences of massage therapists (MTs) during or after these events are not included in the literature. During the Covid-19 pandemic, MTs in many locations around the globe were deemed “non-essential” and per governmental policies or personal choice shuttered their practices. Systematic data collection from these healthcare workers will allow for an examination of experiences previously neglected in the scientific literature.

Objectives:
The objective is to understand the impact of the Covid-19 pandemic on MTs in real time.

Methods:
In under three-weeks, an interprofessional, multi-institution team conceptualized and launched a mixed-methods study: Project COPE: Chronicling healthcare providers’ Pandemic Experiences. Herein we present a preliminary qualitative analysis of video blogs (vlogs) submitted by participants establishing thematic threads. Theme-based hashtags were assigned and used to code for observed dimensions of moral distress, coping strategies, health concerns, social isolation, and return to work.

Results:
Of the 108 vlogs submitted, 93 were contributed by MTs. Systematic review and thematic coding of the submitted vlogs provide an observable progression of reaction to the pandemic. As the pandemic began, early vlog submissions document general worry, uncertainty about covid-19, and financial stress/unemployment concerns by MTs. As the pandemic progressed, subsequent vlogs demonstrate progressive and acute worry about return to work and lack of guidance from institutional authorities and experts.

Conclusions
Analysis of vlog submissions provided a detailed picture of the impact of the Covid-19 on MTs participating in Project COPE. Continued monitoring of the vlogs and quantitative data within the
database will allow for future evaluation of the challenges and wellbeing of these professionals as the pandemic continues.

18 - Branched-chain amino acids use during the peri-operative period in cancer patients: a systematic review and meta-analysis

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Background:
The structurally related branched-chain amino acids (BCAAs) leucine, isoleucine and valine are essential amino acids that act as key substrates for protein synthesis and are involved in immune responses. Cancer patients undergoing surgery are often protein malnourished, and can be in a catabolic state, thus increasing the demand for, and utility of BCAAs. Furthermore, patients with certain liver diseases (e.g., liver cancer, chronic cirrhosis, etc.) may have a decreased ratio of BCAAs to aromatic amino acids (Fischer's ratio), and BCAAs administration may help correct this imbalance.

Objectives:
To evaluate the safety and efficacy of BCAAs use in patients with cancer undergoing surgery to clarify and synthesize the existing evidence base.

Methods:
A systematic review with meta-analysis was conducted following an a priori protocol (PROSPERO registration CRD42018086168). MEDLINE, Embase and Cochrane CENTRAL databases were searched (inception to July 24, 2020) for human randomized controlled trials (RCTs) and comparative observational studies in English. Study selection and data extraction were done independently in duplicate. Risk-of-bias was appraised for RCTs using the original Cochrane Risk-of-Bias tool, and quality assessment of observational studies was conducted with the Newcastle-Ottawa Scale. Meta-analyses were conducted when possible using STATA 12 software.

Results:
20 articles were included reporting on 19 studies, comprising 13 RCTs and 6 observational cohort studies in 7 reports and >2000 patients overall. Among the 13 RCTs, 77% involved liver cancer. 92% of RCTs were from Asia. 69% of RCTs evaluated oral intake of BCAAs, while 31% administered the BCAAs intravenously in hospital. Duration of BCAAs use in the RCTs ranged from only intra-operatively up to 13 months (oral). Administration during both the pre-operative and post-operative periods was utilized in 46% of RCTs, while 39% used BCAAs only post-operatively.
Conclusions
This presentation will summarize the main systematic review and meta-analysis methods, results and conclusions.

19 - Examining changes in posttraumatic stress disorder symptoms and substance use among a sample of Canadian veterans working with service dogs: An exploratory longitudinal study

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Background:
Comorbid posttraumatic stress disorder (PTSD) and substance use is a growing health concern among Canadian veterans. Veterans are increasingly seeking symptom relief for PTSD and comorbid substance use by engaging service dogs. Despite promising results, the efficacy of service dogs in aiding veterans warrants further investigation.

Methods:
An exploratory patient-oriented, community-based participatory, longitudinal, time-series research design was employed with a sample of five Canadian veterans matched with service dogs from AUDEAMUS, Inc. PTSD and substance use were measured at six time points over one year with the PCL-5, DUSI-R, and one-on-one semi-structured interviews.

Results:
Decreases in the veterans’ PTSD symptom scores were evident, and some scale changes were statistically significant. Interview content revealed additional information regarding changes in PTSD symptoms and complemented results based on responses to the PCL-5 and DUSI-BP. The veterans offered accounts of the ways in which their service dogs directly supported them (e.g., interruptions during nightmares or stressful moments) which helped decrease many symptoms for the veterans, including intrusive thoughts, avoidance, negative mood alterations, and arousal/reactivity. While substance use scale changes were non-significant, during the interviews the veterans reported a decrease in their use of opioids and alcohol.

Conclusions
Learning through this study that SDs are of some benefit to veterans diagnosed with PTSD is an important contribution to the emerging field, and a novel contribution in its identification of their beneficial impact on veterans comorbid problematic use of substances, and in particular opioids.
Poster Presentation Abstracts

20 - The Use of Natural Health Products and Health-Related Quality of Life among Women with Breast Cancer

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**Background:**
Patients with breast cancer (BC) often use complementary and alternative medicine (CAM) to address comorbidities and treatment-related symptoms that affect their health-related quality of life (HRQoL). Patients with BC and survivors, who report having severe symptoms, report poor HRQoL and have greater motivation for CAM use.

**Objectives:**
No studies to date have specifically focused on the effect of natural health product (NHP) use, such as vitamins and herbs, on HRQoL of patients with BC. We investigated the differences in HRQoL of women with BC between NHP users and non-users, hypothesizing that NHP users will have lower levels of HRQoL.

**Methods:**
Females aged ≥ 18 years with a history of invasive BC and who provided written informed consent were asked to complete HRQoL questionnaires and a demographic form, including self-reported NHP usage. Individuals with non-breast concomitant cancer were excluded. Mean EuroQol 5 dimensions (EQ5D) scores were calculated to measure utility, a quantitative measure of HRQoL. Utility scores and demographic comparisons were performed using ANOVA and chi-square tests. Multiple regression analyses were conducted to identify whether NHP use was associated with utility outcomes when adjusted for potential confounders. Then, multiple regression analyses stratified by health state were performed to investigate whether utility outcomes differ between NHP-users and non-users within each health state.

**Results:**
In total, 178 patients with BC were included in this analysis (122 NHP users; 56 non-users). Vitamins and minerals were the most common types of NHP used. There was no significant association between NHP use and HRQoL among our participants. After stratification by health state, NHP users with metastatic BC had a significantly higher mean EQ VAS score compared to non-users with metastatic BC (unstandardized beta (B) = 13.5, p=0.015).

**Conclusions**
NHPs may help improve HRQoL in women with metastatic BC specifically.
21 - Evaluating a yoga therapy program for adults diagnosed with cancer: A single-subject repeated measures study

Jennifer Brunet¹,²,³, Julia Hussien¹, Amanda Wurz⁴, Anne Pitman⁵, Ellen Conte⁵,⁶, Julie Ennis⁵, Andrew Seely¹,²,⁷, Dugald Seely¹,²,⁵,⁶

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Background:
Cancer survivors experience physical and psychological symptoms. Complementary medicine including yoga therapy (YT) is used to manage these symptoms. Anecdotally, benefits among cancer survivors have been reported from YT.

Objectives:
As part of a larger study aiming to assess if a YT program developed to improve autonomic nervous system (ANS) functioning is effective at improving ANS functioning and patient reported outcomes (PROs) among adults diagnosed with cancer, we explored if there were improvements in fatigue and quality of life.

Methods:
A single-subject repeated measures design was used. Participants were adults with a diagnosis of cancer not currently receiving active cancer treatment. Participants were identified through: (1) appointment with a naturopathic doctor at the Ottawa Integrative Cancer Centre (OICC), (2) review of OICC clinic records, and (3) self-referral. Fatigue (Functional Assessment of Cancer Therapy–Fatigue scale) and quality of life (Functional Assessment of Cancer Therapy-General scale) were assessed at baseline, post-program and 6-weeks after program completion. Results specific to ANS functioning and other PROs are in preparation and not reported on herein.

Results:
Nineteen participants completed the YT program and assessments. Using one-way repeated measures analysis of variance, we found no statistically significant changes in either fatigue or quality of life. However, interpretation of effect sizes estimates (partial eta square; η²p) suggest large improvements in mean [SD] fatigue (37.47 [7.97] to 40.32 [8.57] to 41.32 [10.36], η²p=.16), and medium improvements in social wellbeing (24.03 [2.71] to 24.49 [3.80] to 24.92 [3.31], η²p=.10), emotional wellbeing (19.05 [3.63] to 19.89 [2.60] to 20.05 [3.47], η²p=.08), and overall quality of life (89.30 [10.01] to 91.23 [10.14] to 90.92 [11.66], η²p=.06) post-program and at follow-up.

Conclusions
YT may improve fatigue and quality of life in adult cancer survivors, but evaluation of YT programs designed specifically for these outcomes in a well-powered trial is necessary.
22 - Effect of Osteopathic Treatment on Perceived Pain, Isometric Strength and Joint Mobility Following Eccentric Loading

**Lynsey Dobish**¹,², Nathalie Trottier²

(¹ Canadian College of Osteopathy; ² Consensio Clinic)

**Background:**
Delayed onset of muscle soreness (DOMS) negatively affects muscle recruitment patterns, range of motion (ROM), strength, and proprioception thus impacting performance and increasing recovery times and risk of injury. Osteopathic Manual Therapy focuses on the treatment of somatic dysfunction and pain by addressing neurovascular and neuromuscular dysfunction which may provide a solution to DOMS.

**Objectives:**
To examine the differences in perceived pain, passive ROM, and isometric grip strength between wrists in adults who were experiencing DOMS, having received general OMT of one limb, and no treatment of the other.

**Methods:**
This quantitative research study used a limb-to-limb comparison design involving 21-healthy adults that met the specified criteria. All subjects received an individualised clean-up treatment. Two-weeks later subjects participated in pain and muscle function measures, and a bilateral eccentric wrist exercise to induce DOMS. Two-hours after the eccentric exercise subjects received a general OMT of a randomly selected arm. The data from the Visual Analogue Scale, JAMAR hydraulic hand dynamometer, and goniometer measures were compared pre-exercise, 24-hours, 48-hours, and 72-hours post-exercise.

**Results:**
There were no statistically significant differences between the control and treatment arm for pain or ROM testing at any time. A statistically significant mean difference in scores was found for isometric grip strength in the general OMT arm at 24-hours (3.9lb, 95% CI [0.6, 7.2]; p=0.02), 48-hours (4.8lb, 95% CI [1.4, 8.1]; p=0.005) and 72-hours (4.3lb, 95% CI [1.0, 7.6]; p=0.01) post-exercise when compared with the control arm.

**Conclusions**
Findings suggest that healthy adults who have undergone an individualized clean-up treatment two weeks prior to eccentric exercise exposure followed by a general OMT two-hours post, will exhibit fewer force capacity deficits associated with DOMS at 24-hours, 48-hours and 72-hours post.
23 - What Web-Based Online Resources Provide Patient Information about Adverse Interactions or Side Effects Associated with Complementary and Alternative Medicine? A Systematic Search and Narrative Review

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Background:
Increases in complementary and alternative medicine (CAM) use warrants healthcare providers’ knowledge of web-based online resources (WBORs) providing patient information regarding adverse interactions or side effects (AIsSEs). This can supplement clinical knowledge to better assist patients’ CAM inquiries.

Objectives:
To assess WBORs containing patient information regarding AIsSEs associated with CAM.

Methods:
Following a systematically searched scoping review, we identified eHealth technologies providing information about AIsSEs associated with CAM. WBORs were assessed in duplicate for quality using the DISCERN instrument, which is designed to assess the quality of patient health information. A general quality assessment of each WBOR was conducted, whereby a large proportion of information about AIsSEs associated with CAM was reviewed to provide a holistic DISCERN score.

Results:
Of 69 eHealth technologies identified, 23 were WBORs which were included in this assessment. WBORs varied in quality with respect to the AIsSEs information specific to CAM. Summed DISCERN scores had a mean of 56.13 (SD=10.25) out of 75. WBORs which had the highest DISCERN scores across all questions included: Micromedex (68.50); Drugs.com (66.50); and National Cancer Institute website (65.50). Databases with the lowest mean scores included: Drug Information (33.00); Caremark Drug Interactions (42.50); and HIV Drug Interactions (43.00). Highest scoring DISCERN item means across all databases included (out of 5): clear aims (4.74); achieving the aims (4.83); describing benefits for each treatment (4.37); and describing risks for each treatment (4.74). Lowest scoring DISCERN Item means included: discussing what would happen if no treatment was used (1.26) and describing how treatment choices would affect quality of life (1.95).

Conclusions:
This study assesses the quality of WBORs containing patient information about AIsSEs associated with CAM. Clinicians and researchers may find value in consulting those WBORs identified to be of high quality when considering sharing resources with patients and addressing their needs.
24 - Computational binding analysis of turmeric curcuminoids with EphA2 receptor for potential use in glioblastoma treatment

Sai Batchu

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Background:
Accumulating evidence suggests overexpression of the EphA2 receptor is associated with malignant human glioblastoma. Impeding activation of this Eph receptor by inhibiting its interaction with ephrin ligands may improve clinical outcomes in patients with glioblastoma.

Objectives:
The present study investigated the potential of curcuminoids from turmeric to bind the EphA2 receptor and block EphA2/ephrin interactions.

Methods:
Keto and enol tautomers of three major turmeric curcuminoids (curcumin, dimethoxy curcumin, bisdemethoxycurcumin) were computationally docked with the ligand binding domain of the EphA2 receptor through AutoDock Vina to measure their binding affinities. The molecular structures and residue interactions of the most favourable pose were further visually examined.

Results:
Binding affinities ranging from -2.2 to -6.6 kcal/mol for the three curcuminoids evaluated. The most favourable binding interaction for EphA2 occurred with bisdemethoxycurcumin in the keto tautomer form near the E-F and G-H loops of the receptor ligand binding domain.

Conclusions
Curcuminoids show a general favourable binding affinity to the EphA2 receptor ligand binding domain with bisdemethoxycurcumin showing the most favourable affinity. As such, these curcuminoids should be further evaluated as a potential therapeutic option in treating glioblastoma.
25 - A Cross-Sectional Survey and Quality Assessment of Websites Providing Information at the Intersection of Complementary and Alternative Medicine and Low Back Pain

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Background:
Low back pain (LBP) is expected to affect up to 80% of individuals at some point during their lifetime. While conventional LBP therapies have been shown to be effective, opioids may lead to dependence, while other pharmaceutical options may result in adverse side-effects. Having this knowledge, it is not uncommon for patients to seek information surrounding complementary and alternative medicine (CAM) online as a means of either supplementing or replacing their conventional LBP care. Little is known about the quality of this web-based information.

Objectives:
The present study sought to assess the quality of web-based consumer health information available at the intersection of LBP and CAM.

Methods:
We searched Google.com using six unique search terms across four English-speaking countries. Eligible articles contained consumer health information in the context of CAM for LBP. We applied the DISCERN instrument, which consists of a standardized scoring system with a Likert scale from one to five for 16 individual questions, to determine the overall quality of the information presented amongst these websites.

Results:
Across 480 websites identified, 87 were unique, and 32 were deemed eligible and assessed using the DISCERN instrument. The mean (SD) overall rating across all websites 3.47 (0.7); DISCERN scores (sums) across all websites ranged from 25.5-68.0, with a mean (SD) of 53.1 (10.3). Trends identified included that most websites reported the benefits for numerous CAM treatment options and provided relevant information for the target audience clearly, but did not adequately report the risks or adverse side-effects that come with treatments described.

Conclusions
Despite some high-quality resources identified, our findings highlight the varying quality of consumer health information available online at the intersection of LBP and CAM. Healthcare providers should be involved in the guidance of patients’ online information-seeking.
26 - What complementary and alternative medicine therapy recommendations exist across clinical practice guidelines for low back pain? A systematic review

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Background:
Approximately 13% of Americans suffer from low back pain (LBP), of which 40% use complementary and alternative medicine (CAM) for its treatment and/or management. Despite this high prevalence, no resource systematically summarizes CAM-related recommendations across clinical practice guidelines (CPGs) for the treatment and/or management of LBP for the benefit of the clinician.

Objectives:
In this study, we 1) identified all CPGs that make CAM-related recommendations and 2) summarized them in a single review.

Methods:
We conducted a systematic review to identify LBP treatment/management CPGs. MEDLINE, EMBASE, and CINAHL databases were searched, along with the Guidelines International Network and the National Center for Complementary and Integrative Health websites, to identify English-language CPGs published from 2008-2018. Two reviewers screened for guidelines that made CAM-related recommendations and completed data extraction of the types of CAM therapies and strengths of recommendations.

Results:
Of 181 unique search results, 22 LBP CPGs were found, 17 of which made mention of CAM therapies. Recommendations relating to CAM were made in all 17 guidelines, and included (number of recommendations in total; for/against/uncertain): spinal manipulation (13; 10/0/3), acupuncture (10; 4/1/5), massage therapy (7; 5/0/2), manual therapy (6; 4/0/2), yoga (2; 1/0/1), tai chi (2; 1/0/1), osteopathic manipulative treatment (1; 1/0/0), herbal therapy (1; 0/0/1) and homeopathic therapy (1; 0/0/1).

Conclusions
The majority of LBP guidelines made CAM recommendations. Most guidelines provided a recommendation to offer spinal manipulation whereas there is uncertainty regarding offering acupuncture as a potential CAM treatment. The remaining therapies, which included massage/manual therapy, yoga, tai chi, osteopathy, herbs, and homeopathy, were not commonly evaluated or recommended across this subset of CPGs. This difference in recommended CAM therapies may be due to a higher prevalence of use of spinal manipulation and acupuncture which reflect a greater body of research in comparison to the other CAM therapies.
27 - Effect of Probiotics Supplementation on CD4+ T Cell Counts and Inflammation in HIV-Infected Adults: A Systematic Review and Meta-analysis

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Background:
Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome (HIV/AIDS) remains a significant medical challenge despite some success of the combined antiretroviral therapy (cART). Progressive decline in CD4+ T cell counts is associated with HIV disease progression, and the loss of CD4+ T cells might contribute to gut microbial translocation and increased immune activation and chronic inflammation. This systematic review and meta-analysis aimed to evaluate the effect of probiotics supplementation on CD4+ T cell counts and inflammation in HIV-infected adults.

Methods:
Two review authors independently searched for randomized clinical trials (RCTs) of probiotics in HIV-infected adults in PubMed, Cochrane Library, Embase, PubMed databases, and three major Chinese electronic databases from their inception to end of January 2020. Registers were also searched to identify potential studies, including the World Health Organization (WHO) International Clinical Trials Registry Platform (ICTRP) and the ClinicalTrials.gov trials registers. Methodological quality was evaluated using Cochrane Risk of Bias tool. We performed meta-analyses using RevMan 5.1 software. Subgroup analysis was performed according to participants accepted ART or ART naive, from developing or developed countries and duration of intervention.

Results:
Eleven RCTs including 548 HIV-infected adults were included. The methodological quality of most included trials was moderate. Probiotics supplementation showed no significant increase in CD4+ T cells in HIV-infected adults (MD: 5.34, 95% CI: 3.39, 22.61; I² = 0%; 8 studies; p = 0.71) compared with placebo. Subgroup analyses also showed that CD4+ T cell counts did not increase significantly in probiotics group. No trial assessing soluble inflammatory markers was included in meta-analysis. Adverse events were reported in nine studies and there was no statistically significant difference in the prevalence of adverse event between the probiotics and placebo groups (OR: 0.97, 95% CI: 0.54, 1.75; 6 studies, I² = 0%, p = 0.93).

Conclusions
The results of this meta-analysis suggested that probiotics supplementation may have no effect on CD4+ T cell counts. The adverse events reported appeared to have no correlation with the probiotics treatments. However, well-designed, randomized controlled trials are suggested to further validate these results. Protocol Registration: PROSPERO (ID: CRD42020159975).
28 - Are we Supporting the Well-Being of Medical Students? A Systematic Review

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Background:
Medical students experience significant stress and mood impacts due to workload, deadlines, loans, and uncertain career choices. Unresolved stress leads to high physiological arousal, burnout, physical impairments and increased risk of unethical behaviour. Studies have failed to establish distinct coping strategies to improve the well-being of medical students and there is little evidence on the impact of stress specifically on naturopathic medical students.

Objectives:
The author’s aim is to review the literature on strategies shown to improve the well-being of medical students. This systematic review will guide the design of a prospective matched cohort study to evaluate the impact of a longitudinal wellness program on mood and perceived stress of naturopathic medical students.

Methods:
An English systematic review was performed using the Pubmed database with keywords: “medical students”, “well-being”, “strategies”, “tools”, “coping”, “support”, and “stress management”. The search targeted studies focused on well-being strategies implemented by medical schools between the date of database inception to July 3rd, 2020.

Results:
Interventions included stress management workshops, resilience training, mindfulness meditation and reflective practice. Studies collected data via interviews, small group meetings, essays, questionnaires, and surveys. Students in intervention groups experienced lower levels of psychological distress and perceived stress, along with an improvement in general well-being, mindfulness, resilience, development of better coping strategies and improved academic/clinical performance. Results were sustained when studies included follow-up, and when asked, students recommended well-being focused programs.

Conclusions
There is clear evidence, based on the studies which have been analyzed, on the effectiveness of incorporating wellness focused programs and strategies into medical school curricula. Although intervention and outcome measures varied, a common theme of students benefiting from wellness strategies was prevalent. Further studies are warranted to develop curriculum changes allowing similar programs to be accessible to all medical students.

Correction statement: In the initial version the author Imane Squalli Houssaini was omitted. In agreement with authors and editors the name was added on July 8, 2021.
29 - Effects of a myofascial technique on the structure and biomechanical properties of the thoracolumbar fascia in chronic low back pain adults assessed by sonoelastography and myotonometry: a study protocol

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Background:
Non-specific low back pain is a global problem that remains poorly understood. Several authors have focused on the role that fascia may play in chronic low back pain. Some changes in the structure and biomechanical properties of the thoracolumbar fascia have been documented in this population: increase in thickness, decrease in gliding ability and increase in stiffness. These tissue changes could lead to compression or irritability of nerve endings contributing to pain. Myofascial techniques are commonly used in manual therapy by practitioners of various backgrounds. However, there is paucity of evidence on their effects on tissue state.

Objectives:
To explore the immediate mechanical effects of a standardized myofascial technique (MFT) in comparison to a simulated MFT on the structure and biomechanical properties of the myofascia.

Methods:
A before-after experimental study protocol is proposed. A total of 48 participants with chronic non-specific low back pain will be recruited and randomly assigned to a standardized MFT group or a simulated MFT group. MFTs will be performed by an experienced osteopath. Outcomes will be collected by a physiotherapist blinded to group assignment, with state-of-the-art instruments and validated procedures and will include: 1- biomechanical properties characterized by stiffness (shear wave elastography); shear strain (ultrasound); tone, elasticity, dynamic stiffness, creep, stress-relaxation time (myotonometry); 2- structure characterized by thickness (ultrasound); 3- pain intensity (visual analogue scale). Paired t-test and repeated measures ANOVA will allow comparisons before/after the procedure and between groups.

Expected results:
We hypothesize that MFT will lead to a decrease in myofascia thickness and stiffness, an increase in shear strain and a decrease in pain intensity in comparison to simulated MFT.

Conclusions
This project will allow a better understanding of the effects of a therapeutic approach that is commonly taught and used in manual therapy but whose mechanisms of action remain poorly understood.
30 - The Quality of Information about Ephedra sinica Available on Websites of Online Vendors selling to Canadian Consumers

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Background:
Ephedra sinica (ES) is used to promote weight loss, enhance athletic performance, and remedy common ailments, such as the cold. The ease and accessibility of the internet allows Canadian consumers to purchase products, such as ES, online. Opinions about the safety and efficacy of the products are often influenced by the information available on retail websites. However, the quality of such information can be variable.

Objectives:
To assess the quality of information about ES available to Canadian consumers purchasing the product from an online vendor.

Methods:
A Google search was conducted using six search strategies. Websites were eligible if they sold ES products online and shipped them to at least one region in Canada. Eligible websites were assessed using the DISCERN instrument that consists of 16 questions scored on a five-point Likert scale, to determine the quality of consumer health information.

Results:
The Google search identified 660 websites, of which 377 were duplicates. Of 283 unique websites, 28 were eligible for assessment based on our eligibility criteria. Following DISCERN scoring, the overall quality of information was found to be poor, as 79% of online vendors received an average score of 2 or below. The mean overall rating of the websites and the overall DISCERN scores were 1.82 (0.60SD) and 30.50 (7.81SD), respectively. Websites scored highly on questions assessing whether aims were identified and achieved, but scored poorly in other categories that evaluated criteria, such as the relevance of information and the presence of bias.

Conclusions:
Consumers looking to purchase ES online are lacking critical information necessary to make informed decisions about the product’s use. This study provides information that can inform both clinicians and researchers about the quality of consumer health information available. A need exists to help patients identify and avoid websites of poor-quality or providing misinformation.
31 - Honeybee products for the prevention, treatment and/or recovery of COVID-19 and other coronavirus-related respiratory tract infections: A living rapid review

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Background:
The global COVID-19 pandemic has prompted an urgent search for interventions to prevent, treat and support recovery from SARS-CoV-2. Honeybee products (honey, bee-pollen, royal-jelly propolis and bee-venom) are widely used in traditional and modern medicine. They contain bioactive compounds shown to illicit anti-viral effects, including reduced virulence of human coronaviruses and also produce immune-modulating, anti-inflammatory and tissue-healing effects that may lessen the severity of symptoms. Honey has demonstrated equivalence and superiority against controls for acute cough in children, without adverse effects and is recommended in WHO and NICE clinical-practice-guidelines. A systematic review and meta analyses for honeybee products in treatment of adults is yet to be undertaken.

Objectives:
To systematically appraise the quality of evidence and efficacy of honeybee products for use in SARS-CoV-2.

Methods:
A protocol for the rapid systematic review of honeybee products was registered with PROSPERO on 20 July 2020. Included will be randomized and quasi-randomized controlled-trials that compare single or adjunct honeybee products to placebo or active controls for prevention, treatment or recovery from the SARS-CoV-2 virus, for other coronavirus or related viral respiratory infections. Important outcomes include the incidence of infections, reduced duration and severity of symptoms, and recovery from post-viral illness (incidence, duration and severity). Indirect evidence from coronavirus species other than SARS-CoV-2, and related respiratory virus infections will be graded down. Rapid review constraints will include publications in English only, search results screened by single reviewers following calibration, appraisal of quality and certainty, data extraction and meta-analyses by a single reviewer, checked by a second reviewer, and reporting relevant results as they become available in a living systematic review.

Results:

Conclusions
This systematic review will provide evidence for honeybee products for prevention, treatment and recovery from SARS-CoV-2 infections.
32 - A Snapshot Taken at the Intersection of Coronavirus Disease 2019 (COVID-19) and Traditional, Integrative, and Complementary and Alternative Medicine: A Bibliometric Analysis of Research Trends

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Background:
Coronavirus disease 2019 (COVID-19) is a novel infectious disease currently responsible for a global pandemic. Traditional, integrative, complementary and alternative medicines (TICAMs) have been touted as the solution, as well as researched as a potential remedy globally.

Objectives:
To conduct a bibliometric analysis of global research trends at the intersection of TICAM and COVID-19.

Methods:
SCOPUS, MEDLINE, EMBASE, AMED and PSYCHINFO databases were searched on July 5, 2020. All publication types were included, however, articles were only deemed eligible if they made mention of one or more TICAMs in the context of COVID-19. The following article characteristics were extracted: title; author names, affiliations, and countries; DOI; publication language; publication type; publication year; journal (and whether it is TICAM-focused); 2019 impact factor, and TICAMs mentioned.

Results:
A total of 296 eligible articles were published by 1373 unique authors at 977 affiliations across 56 countries. The most common countries associated with author affiliation included China, United States, India and Italy. The vast majority of articles were published in English, followed by Chinese. Eligible articles were published across 157 journals, of which 33 were TICAM-focused; 120 journals had a 2019 impact factor, which ranged from 0.17 to 60.392. A total of 327 TICAMs were mentioned across eligible articles, with the most common including: Traditional Chinese Medicine (n=94), vitamin D (n=67), melatonin (n=16), phytochemicals (n=12), and general herbal medicine (n=11).

Conclusions:
This study provides researchers and clinicians with a greater knowledge of the characteristics of articles that have been published globally at the intersection of COVID-19 and TICAM to date. At a time where safe and effective vaccines and medicines for the prevention and treatment of COVID-19 have yet to be discovered, this study provides a current snapshot of the quantity and characteristics of articles written at the intersection of TICAM therapies and COVID-19.
33 - An Academic Integrative Healthcare Centre: Protocol for Logitudinal Evaluation

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Background:
Given increasing evidence and consumer demand, the combined use of traditional, complementary and integrative medicine (TCIM) and conventional care, has the potential to reduce healthcare costs and chronic disease burden. As such, it is important to study models of how TCIM and conventional care can be provided in coordinated ways. Australia’s first academic integrative healthcare centre will open in late 2020, delivering a model of care which is patient-centred, in a team-based collaborative setting, that is evidence-based and evidence generating.

Objectives:
Underpinning the centre is a mixed-methods study to examine the value and safety of this model of care, and the whether the objectives are being achieved.

Methods:
The evaluation is a longitudinal, prospective observational study of patients and the practitioners and staff who care for them. The mixed-methods study design incorporates a broad range of primary measures. Subjective self-report quantitative instruments and other routinely collected data will be used to measure the extent to which the centre meets objectives in delivering evidence-based, whole-person care in a multidisciplinary and team-based environment in order to improve health outcomes. A patient registry will be established and assess the extent to which the Centre is achieving its aims (summative evaluation) and to inform patient care and future directions of the integrative healthcare program at WSH (formative evaluation). Secondary sources of data will include electronic medical record extracts and linkage with other Australian health datasets.

Results:
The analysis will be conducted within the context of the Quadruple Aim. Analysis will measure health outcomes, per capita cost of care, the extent to which quality healthcare and person-centredness is provided, and practitioner satisfaction and wellbeing.

Conclusions
Integrative healthcare is a “whole systems” approach that employs multiple TCIM modalities in a collaborative way. Studying outcomes and cost effectiveness from this approach is complex and requires a hybrid of implementation and effectiveness science.
34 - Moral Distress of Healthcare Workers During an Active Pandemic: Preliminary results from Project COPE

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Background:
Healthcare workers can experience moral distress when decision making is constrained by external forces such as policies and procedures that conflict with one's belief in the right course of action. The COVID19 pandemic is providing new conditions of moral distress as healthcare professions are experiencing unique challenges to serve their patients depending on their ‘essential’ status and geographical location. Increasing experiences of moral distress impacts the healthcare system and its workers, resulting in a novel dynamic problem for the global healthcare workforce.

Objectives:
The objective of this study was to explore the various experiences of moral distress as a result of the COVID19 pandemic on essential and ‘nonessential’ workers.

Methods:
Preliminary data was collected through self-report questionnaires from 20 professions in 10 countries. Participants responded to measures of moral distress and wellbeing with the option to provide video submissions of qualitative data describing their experiences.

Results:
Data is presented from the first three months of data collection. Of the 703 responses to the survey, 37% of participants reported feeling moral distress at least once per day. Interestingly, moral distress was experienced more frequently for ‘nonessential workers’ who had to stop seeing patients during pandemic (26%). Essential respondents who were still working, reported fear that their exposure was not under their control, concern in the shortage of personal protective equipment, and feeling ill-prepared to manage escalating work demands.

Conclusions:
The findings of this study will raise awareness of the silent impact moral distress can have on healthcare workers. The identification of the similarities and differences between essential and ‘nonessential’ healthcare workers will contribute to the understanding of the experience of moral distress as a result of societal, environmental, and health systems factors that alleviate or intensify clinician moral distress during the COVID-19 pandemic and beyond.


35 - Project COPE: Chronicling healthcare prOviders Pandemic Experiences: A Descriptive Study of Essential and Non-Essential Health Care Workers During an Active Pandemic

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Background:
Researchers have documented the experiences of a variety of healthcare workers following major catastrophic events; however, data is often collected after the fact, rather than obtaining the emotional and physical experiences individuals are actively experiencing. Additionally, perspectives of complementary and integrative health (CIH) practitioners are rarely captured during these events. Systematic and interprofessional data collection from all types of healthcare workers, including CIH practitioners, during the Covid-19 pandemic will provide an understanding into providers’ experiences from two perspectives: 1) those healthcare providers who are locked in the healthcare system without any real ability to make changes, such as MD/DOs, RN, etc. 2) and those locked out of the same system and not being allowed to help (massage therapists, other CIH providers, etc.).

Objectives:
The study objective is to understand the experiences and impact of the Covid-19 pandemic on wellness, moral distress, and experiences of providers in real time. Here we report the impetus of the study, the early data collection, and lessons learned.

Methods:
Within three weeks, we developed, received ethical oversight, and launched an international, longitudinal, mixed-methods study, recruiting through social media and networking. Recruitment, participant participation and pandemic evolution are monitored weekly.

Results:
Study idea formation began in the last week of March 2020 and data collection began mid-April. By mid-July we have 703 participants, representing 10 countries and 20 healthcare fields; the majority are CIH providers. Early publicity within the massage therapy community provided an additional avenue for recruitment which is being duplicated for other fields. Monitoring of participation and data allowed for targeted recruitment materials and protocol/survey amendments.
Conclusions
The findings will allow for the development of a longitudinal database for future evaluation of changes in wellbeing (e.g. emotional, physical, financial) and willingness to stay in a chosen health profession as the Covid-19 pandemic continues.

36 - An Assessment of Common Comorbid Conditions and Health Concerns in Fibromyalgia Patients: A Retrospective Medical Record Review

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Background:
Fibromyalgia is characterized by chronic pain, with allodynia and hyperalgesia being the most common signs. Many patients with fibromyalgia explore, express interest and use complementary and alternative medicine to help manage symptoms and improve quality of life. However, little is known about the clinical recommendations provided by naturopathic doctors (NDs).

Objectives:
To describe trends in assessment and treatment of patients with fibromyalgia by NDs.

Methods:
Retrospectively, medical records of 200 patients with the fibromyalgia ICD-10 code were identified from the Robert Schad Naturopathic Clinic (RSNC). Comorbid conditions, health concerns, physical and psychological examinations, and treatment were assessed. Patients were excluded if informed consent for research was not signed. The project was approved by the Research Ethics Board of the Canadian College of Naturopathic Medicine.

Results:
70 patients met criteria for this audit and were included in the current analysis. Most patients identified as female (96%). Vitamin D (57%), magnesium (54%), omega-3 fatty acids/fish oil (53%), acupuncture by an acupuncturist (53%) or an ND (40%), B12 orally or by injection (40%), and probiotics (40%), were highly utilized treatments. A past/current medical history of arthritic conditions (53%), depression/mental illness (63%) were common comorbidities, alongside digestive complaints (64%). A family history of arthritic conditions (47%) was also prevalent. The Widespread Pain Index and Symptom Severity (WPI-SS) tool (43%) was commonly used to assess and monitor progress. No adverse effects of treatment were readily identifiable.

Conclusions
The RSNC appears to be providing an assessment and treatment of patients with fibromyalgia that has elements of consistency and congruence with individualized patient centered treatment that is considered to be a hallmark of ND care. Future research involving quality improvement initiatives, patient preferences, and multi-centered sites appear warranted in understanding trends in naturopathic care for fibromyalgia.

37 - A systematic review of probiotics use during oncological surgery

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Background:
Probiotics are live beneficial microorganisms and they have shown promise in preventing post-operative complications. Variations in probiotic interventions and the surgical milieu require nuanced synthesis work to inform clinical decisions.

Objectives:
To evaluate the evidence base for the safety and efficacy of probiotics in patients with cancer during the peri-operative period.

Methods:
A systematic review was conducted following an a priori protocol (PROSPERO registration CRD42018086168). Primary review outcomes were: mortality, cancer treatment response, recurrence, remission, metastasis/disease progression, and stable disease. Secondary outcomes were: adverse events, post-operative infections and antibiotic use, other post-operative complications (i.e., nausea and vomiting, diarrhea, constipation, intestinal obstruction, and ileus), bleeding, length of hospitalization, quality of life, wound healing, pain, anthropometrics, fatigue, cancer biomarkers, immune cells, and inflammatory markers levels. MEDLINE, Embase and Cochrane CENTRAL databases were searched (inception to August 2019) for human studies in English. Study selection and data extraction were done independently in duplicate. Risk-of-bias was appraised for RCTs using the original Cochrane Risk-of-Bias tool, and quality assessment of observational studies was conducted with Newcastle-Ottawa Scale.

Results:
38 articles were included reporting on 35 studies, comprising 31 RCTs (in 34 reports) and 4 comparative observational studies. Many diverse multi-ingredient combinations were evaluated in all but four of the 31 RCTs (87%), including one intervention (Yakult + Oligomate, containing Lactobacillus casei strain Shirotap, Bifidobacterium breve strain Yakult, and galacto-oligosaccharides) that was used in 6 (19%) RCTs. 27 (87%) RCTs investigated oral products, while four (13%) administered interventions by enteral
nutrition tubes during hospitalization. 28 (90%) RCTs dealt with digestive system cancers; bladder, laryngeal, and head and neck cancers each had one RCT. 21 (68%) RCTs were conducted in Asia, five (16%) in Brazil, four (13%) in Europe, and one (3%) in USA.

**Conclusions**
Following an updated search, final results and conclusions will be presented.