ACE Clinical Link Newsletter
August 2017

Created and distributed by the Mary Pack Arthritis Program: A newsletter for health professionals working with people with arthritis

Editor's Message

Welcome to the first edition of the more frequent, "compact" version of the ACE Clinical Link Newsletter. This issue has a strong focus on osteoarthritis (OA), which I'd argue is a reflection of the considerable amount of research that is being conducted with this disease population. This includes a description of a tool for calculating the risk of developing knee OA; the announcement of a new online tool to improve the diagnosis and management of knee, hip, or hand OA; and a recommendation for the use of hyaluronic acid for knee OA. There are also two slightly longer pieces, one of which answers the question of what the First Nations residential school experience has to do with arthritis and the second which outlines common reasons for collecting patient-reported outcome measures (PROMs) in the clinic setting. If anything you read sparks questions or comments, I can always be found at Paul.Adam@vch.ca.

Hip and Knee Arthroplasty Rehab: An advanced skills workshop for physical therapists

This workshop combines the latest research with extensive clinical experience to provide attendees with skills that can be directly used in the clinic. Sessions include:

- Overview of latest THA and TKA surgical techniques
- Role of physical therapy along the rehab continuum
- Physical examination to guide rehab interventions
- Recognizing and addressing common functional problems
- Prescribing progressive exercises in post-acute phase
- Best practices for manual therapy & modalities
- Using outcome measures to guide & evaluate treatment
- Tips on providing group treatment in private practice
- Community & online resources to support physical activity

The workshop takes place on Friday, October 20th and Saturday, October 21st. If you'd like to attend, act fast as the early bird registration deadline is Friday, September 1st and registration closes on September 22nd. The registration brochure and registration form are available on the http://mpap.vch.ca/resources-for-professionals/becoming-an-ace-member.

What is your Chance of Developing Knee Osteoarthritis?

Researchers at Brigham and Women's Hospital in Boston have developed an online risk calculator that purports to determine your chance of developing knee OA or having to undergo Total Knee Replacement surgery - http://calculator.oarisk.org/.

The online calculator collects demographic information such as age, gender and ethnicity, as well as height and weight. It then asks questions related to family history of arthritis, knee or hip replacement(s), and finger nodules. There is a question about exposure to work-related risk factors associated with knee OA, such as kneeling, squatting, or lifting. Finally, the last question

asks whether the respondent has ever had a serious knee injury that limited walking for at least 7 days.

Despite being a 58-year old man with a family history of OA, the tool informed me that I had about a 6.5% chance of developing knee OA in the next 10 years. And my lifetime chance of developing knee OA was 12.1%, with a lifetime chance of having a total knee replacement at 3.6%. The bar graph is interactive, thus allowing the user to see how the chance of developing knee OA changes based on changes to the variables used to calculate it. For example, when I added obesity to the mix of factors, my lifetime risk of developing knee OA rose to 20%. And when I added a serious knee injury, I suddenly had a 32% chance of developing knee OA at some point in my lifetime. The impetus behind the inclusion of the interactive bar graph is for people who are at a higher risk for developing knee OA to see how their risk of developing knee OA would change if, for example, they were able to reduce to a more normal body weight or change their job duties to limit kneeling, squatting, or lifting.

The online risk calculator can also be used by someone who has already been diagnosed with knee osteoarthritis. In this situation, the tool can be used to calculate the chance of having a total knee replacement based on the individual's current age, age when diagnosed with knee OA, gender, ethnicity, height and weight. Unfortunately, this part of the tool is not interactive.
For more information on how the risk calculator was developed and tested, please see the summary of the paper by Losina et al. (2015) in the Articles of Interest.

MPAP REACH Education Day Sessions Posted to MPAP Website

Videos of 3 of our 2017 MPAP REACH Education Day presentations have now been uploaded to the MPAP website - http://mpap.vch.ca/resources-for-professionals/educational-resources/educational-videos - these videos are best viewed on more recent versions of Google Chrome or Internet Explorer (IE9 or higher).

These presentations include:

1. Self-Management BCs Health Coach Program – Dr. Patrick McGowan
2. Human Microbiome & Autoimmunity – Dr. Greg Marcotte
3. Therapeutics in Inflammatory Arthritis: What's old? What's new? What's coming? – Dr. Shahin Jamal.

Please note that in most cases you will not be able to see the speakers, as they were unfortunately standing outside of camera range. Also, the second and third presentations are on the same video clip. If you only want to see the third presentation, please click and drag the time lapse indicator that is below the video. The third video starts at 58:48.

What does the Residential Schools Experience have to do with arthritis?

Gail Stromquist, an educator with the BC Teachers' Federation, presented at the MPAP REACH Education Day recently on the topic of, "*Residential Schools Experience: A Multigenerational Impact on First Nations People in BC*." Ms. Stromquist, herself of First Nations descent, gave a moving talk based on the Project of Heart booklet - http://bctf.ca/HiddenHistory/. This booklet brings to life the hidden history of Indian Residential Schools in BC. While many attendees found the presentation to be powerful and inspiring, others questioned the relevance of this topic

during a day of arthritis-related presentations. As an educator, Ms. Stromquist did not have the expertise to draw these connections. And while this is not an area in which I have considerable knowledge, my recent completion of PHSAs Cultural Competency Online Course - http://www.sanyas.ca/ - has given me enough insight to provide a basic answer to the question of how residential schools are tied to health.

PHSAs Cultural Competency Course stresses the importance of knowledge, self-awareness, and skills, and addresses each in turn. The course offers knowledge so as to provide an understanding of Indigenous peoples, their culture, and their history. A key component of that history is the Residential Schools Experience. The course also challenges participants to understand their own culturally-anchored beliefs, attitudes, and ways of being. Lastly, the course teaches skills to guide clinicians on how to work with clients using a culturally-competent approach. An approach that I'd suggest is equally relevant and useful when working with any client from a culture other than one's own.

The connection with health is made apparent when one realizes that health status arises from a complex interplay of social, political, and economic determinants. At one level are proximal determinants of health, or those determinants that have a direct and relatively immediate impact on physical, emotional, mental or spiritual health. One example of the many proximal determinants of health is the fact that Indigenous people in Canada are more likely to live in substandard housing (e.g., houses with mold and mildew) or reside in communities with unsafe drinking water.

Intermediate determinants of health are one step removed and are considered the origin of the proximal determinants. Health inequities related to a lack of community infrastructure, resources and capacities are one aspect of the intermediate determinants of health. An example of this for First Nations people with arthritis is evident in the most recent JointHealth™ Arthritis Medications Report Card - http://jointhealth.org/programs-jhreportcard.cfm?locale=en-CA. This report indicates that NHIB provides the second worst access to biologics in Canada.

Finally, distal determinants of health are thought to have the most profound impact on the health of populations, as they represent the political, economic and social contexts that give rise to both intermediate and proximal determinants. The Residential Schools Experience was but one element of the colonization process that also included geographical incursion, sociocultural dislocation, external political control, and economic dispossession. Some of the effects of the Residential Schools experience were that it partially or fully eradicated culture, language, family ties and community networks for generations of First Nations, Métis and Inuit children. A recent scoping review summarized in the Articles of Interest section at the end of this newsletter attempted to understand the effects of residential schooling on the health and wellness of Indigenous peoples. This study found that residential school attendees and subsequent generations have experienced a range of detrimental health outcomes including those tied to general health, physical health (e.g., diabetes, arthritis, etc.), and mental and emotional well-being (e.g., major depression, substance abuse disorder, etc.). The paper concluded by stating that an understanding of the historical context is critical to understanding the contemporary health and well-being of Indigenous peoples.

For more information, the publication Health Inequalities and Social Determinants of Aboriginal Peoples' Health - http://www.nccah-ccnsa.ca/docs/social%20determinates/NCCAH-loppie-Wien_report.pdf - provides an excellent and detailed overview of this topic.

Osteoarthritis Tool Launched

On July 20th, the Arthritis Alliance of Canada and the College of Family Physicians of Canada launched the Osteoarthritis Tool. It was developed so as to provide primary care physicians with the knowledge and skills to effectively diagnose and manage osteoarthritis of the hip, knee, or hand. The Osteoarthritis Tools is expected to help physicians and other health care providers:

- Identify, assess, and monitor OA;
- Assist patients in their efforts to self-manage their disease;
- Recommend specific non-pharmacologic and pharmacologic therapies.

The Osteoarthritis Tool can be found at - http://arthritisalliance.ca/images/OA_Tool_Final_July_24_2017_ENG.pdf

Hyaluronic Acid for Knee OA

The June 2017 issue of The Rheumatologist reported on the work of an international task force that recommended systematic repeated intra-articular hyaluronic acid (HA) injections as a second-line treatment for patients with knee osteoarthritis who have had a beneficial response with a previous cycle of treatment. In particular, HA injections should be considered for patients who remain symptomatic despite continuous or intermittent use of conventional pharmacologic treatments, such as acetaminophen or non-steroidal anti-inflammatory drugs (NSAIDs), or in patients with co-morbidities the preclude the use of these first-line agents. Further, HA injections have been shown to be safe and to have "moderate but real" benefits. As well, the task force indicated that there was no clinical evidence supporting any one HA product over another.

Roundtable on Arthritis Research (ROAR) 2017: Managing Arthritis and You

The Roundtable on Arthritis Research (ROAR) is an event targeted to patients with the goal of providing updated information on arthritis-related research in Canada. ROAR 2017 is scheduled to take place on Saturday, October 21st from 9:30 am to 12:30 pm (PDT). Patients can attend in person at the Vancouver Public Library Central Branch at a cost of $5 or for free if participating in the live webcast.

Some of the topics and presenters include:

- "What's a Brain Like You Doing in a Joint Like This?" by Cheryl Koehn
- "Managing Lupus and You – Navigate Your Journey with 'My Lupus Guide'" by Dr. Paul Fortin
- "Fitbit/Fitviz update – Stepping Out or Stepping Aside: Activity Trackers and Arthritis" by Dr. Linda Li
- "Good News About Lifespan for People with Rheumatoid Arthritis" by Dr. Diane Lacaille

Information on how to register is available on the Arthritis Research Canada website - http://www.arthritisresearch.ca/roar.

Patient-Reported Outcome Measures (PROMs)

I recently conducted an in-depth review of the PROMs literature and wrote a report for the Mary Pack Arthritis Program identifying what we might need to consider if we were to implement a standardized approach to the collection and utilization of PROMs. Below is a brief highlight from this 77-page report focusing on the common reasons for collecting PROMs.

The United States Food and Drug Administration have defined a patient-reported outcome as, "any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else." Patient-reported outcomes (PROs) have many applications in clinical. When deciding to collect PROs it is important to have a clear purpose for doing so, some of the reasons for which include:

- **Screening for problems/risk behaviours**: Arthritis patients often have complex problems for which we may hold only one part of the answer. There may be an emotional overlay involving depression, anxiety, or pain catastrophizing. RA disease activity is another potential factor that may benefit from inclusion in your screening process, as are co-morbidities like fibromyalgia and neuropathic pain. Finally, a last set of factors to consider are modifiable risk behaviours such as smoking, obesity and sedentary activity. Being aware of the presence of these factors can help in determining the right time for treatment, or trigger a referral to another department or outside resource. Prior to initiating screening it's necessary to have a validated instrument that can be used to either identify the presence of a problem or risk, or determine the degree to which a problem or risk exists. As well, clinicians need to be prepared to provide education and, if appropriate, interventions or referrals to appropriate interventions. Some of these include:
    - Mental health/substance abuse online screening and identification of resources – MindHealth BC - http://www.mindhealthbc.ca/
    - Smoking – QuitNow BC - https://www.quitnow.ca/
    - Obesity – Dietician Services at HealthLink BC - https://www.healthlinkbc.ca/dietitian-services
    - Sedentary activity – Physical Activity Services at HealthLink BC - https://www.healthlinkbc.ca/physical-activity

- **Monitoring treatment response** – PROMs can be used to monitor the effectiveness of treatment or guide adjustments to treatment, if needed. However, if using PROMs for this purpose, extra care is required in choosing measures that have been shown to have the utmost precision and reliability. One strategy is to use instruments that have been developed and are based on Item Response Theory (IRT), which have generally been found to have greater precision and responsiveness than more traditional, so-called 'legacy' measures. The PROMIS measures (http://www.healthmeasures.net/explore-measurement-systems/promis), the development of which were funded by the National Institutes of Health, are a suite of free measures that have been created using modern statistical techniques with the aim of producing measures that are both precise and short (see the summary of the study by Wahl et al. in the Articles of Interest section).

- **Fostering patient-centered care** – PROMs can be utilized to support patients in taking ownership or becoming more engaged in their own care. PROMs can also identify a

patient's specific priorities for care, which may differ from that identified during the clinical assessment. While there are some disadvantages to their use, patient-specific preference-based PROMs (e.g., Patient Specific Functional Scale or the Canadian Occupational Performance Measure) may better capture the relative importance of particular outcomes to patients.

- **Fostering patient decision-making** – decision aids help patients to weigh the impact of different treatments on outcomes, as well as how different treatments may compare based on individual patient values. ANSWER (http://answer.arccanada.org/) is an online decision aid to assist patients in deciding whether or not to take methotrexate. And ANSWER-2, which is still in the research stage, is an online decision aid to assist patients in deciding whether or not to take a biologic medication, and if yes, which biologic therapy to start or add.

- **Facilitating team communication** – PROMs can be used to facilitate team communication by providing objective numerical values that allow team members to speak the same language.

- **Supporting quality improvement** – PROMs can support continuous quality improvement in a number of ways including assessing the effectiveness of group programs, or comparing outcomes by patient population and intervention, to name a few. Quality improvement is predicated on having comparable data arising from the use of similar PROMs across disciplines and sites. There have been several recent initiatives to identify and develop core datasets in OA and RA, as well as instruments comprised of single items targeting a variety of domains deemed of importance to patients. In order to compare programs, populations or interventions it's important to account for variations in patient characteristics and disease severity that may impact outcomes. Unfortunately, there is no gold standard for adjusting for risk or known confounders. Research has been conducted to identify case-mix factors thought to influence outcomes in osteoarthritis. A simple alternative to risk- or case-adjustment is to stratify patients into sub-groups prior to conducting one's analysis (e.g., low vs. high disease activity state, or by low and high functional ability).

Articles of Interest

Losina E, Klara K, Michl GL, et al. Development and feasibility of a personalized, interactive risk calculator for knee osteoarthritis. *BMC Musculoskeletal Disorders* 2015;16:312.

The purpose of this study was to test the feasibility and acceptability of an interactive, personalized, computer-based risk calculator (OA C Risk) in a sample of OA-absent individuals. OA C Risk is based on previous research that has shown that older age, female gender, obesity, occupational exposure, and history of knee injury have been associated with the development of knee OA. Data for the development of OA C Risk had been previously generated by the Osteoarthritis Policy (OAPol) Model. OAPol is a validated, published, state-transition, Monte Carlo model of the natural history and management of knee OA. Prior to developing the tool, researchers conducted 2016 model simulations using each unique combination of 7 input variables. These included current age (25 – 45), gender (male/female), race/ethnicity (White,

Black, Hispanic), obesity status (obese, non-obese), family history of knee OA (present/absent), occupational exposure to OA risk (present/absent), and history of knee injury (present/absent). Base incidence and progression rates were derived from the National Health Interview Survey and were stratified by age, sex, and obesity. Data from Zhang et al. (2011) was used for calculating the increased risk of developing knee OA for those with a family history of OA (↑ by a factor of 1.72), a history of knee injury (↑ by a factor of 2.39), and/or occupational risks (↑ by a factor of 1.28). Risk factors were assumed to be independent and multiplicative. For information on the questions asked and the way the calculator works, please see the article on page 1 of the newsletter.

To assess feasibility and acceptability of OA C Risk, subjects were recruited from a primary care clinic within a tertiary medical center. Both patients and non-patients in the waiting room were invited to participate. Participants were eligible to participate if they were between 25 and 45 years of age, spoke English, had not been diagnosed with arthritis, had access to a computer and the Internet, and were willing to provide their email address. Eligible participants were provided with convertible laptop (i.e., functions as both a laptop computer and tablet). To measure feasibility and acceptability, subjects were asked to rate its ease of use and comprehensibility using a 5-point agreement scale (Strongly Disagree to Strongly Agree).

Forty-five patients were enrolled and completed the OA Risk C assessment. Average age was 34 and 46% had a Bachelor's degree or higher. In general, participants found the calculator to be easy to use and understand. Eighty-seven percent responded that the calculator was easy to use, 84% indicated that their risk of developing knee OA was clear and easy to understand, and 89% agreed that the graphical representation of OA risk was clear and easy to understand. Specifically, self-reported understanding of OA risk ranged from a high of 100% in Whites, to 87% in Hispanics and 75% in Blacks. Men reported more difficulty in understanding the graphical representation of their OA risk than women (17% vs. 3%).

One limitation of this study is that the OAPol model does not contain data for persons younger than 25 or for those identifying as a race/ethnicity other than Black, White, or Hispanic. A second limitation is that the increase in risk due to occupational exposure, history of knee injury, or family history of knee OA was applied to basic incidence rates of non-obese persons, and therefore may lead to some over-estimation. As well, the assumption that risk factors are independent and multiplicative may also have led to some over-estimation. Disclaimers have been added to the calculator to address the possible issues related to over-estimation. Finally, there is limited data showing that reducing exposure to risk factors of knee IA will impact risk in a meaningful way. This limitation was addressed by stating that the comparison of risk is between persons with and without the risk factor, as well as with the addition of another disclaimer acknowledging that there is limited data on the reduction of risk among those who modify a risk factor.

Hauser W, Clauw DJ, Fitzcharles M. Treat-to-Target Strategy for Fibromyalgia: Opening the dialogue. *Arthritis Care & Research* April 2017;69(4):462-466.

The premise of this article is that while a Treat-to-Target (T2T) approach has been successfully implemented in the care of many conditions, including rheumatoid arthritis, it has not been operationalized for the care of people with fibromyalgia (FM). The article then delineates the elements that would need to be put in place for this to occur.

The T2T approach entails apply a treatment strategy to improve patient outcome as assessed by a pre-specified measure that captures disease severity. In addition the symptom control, the primary objective of T2T is to improve long-term functional outcomes and prevent adverse consequences by applying an effective treatment algorithm with the goal of obtaining disease remission or very low disease activity. The operationalization of a T2T approach in FM would require, amongst other things, a clear disease definition, the availability of effective FM treatments with known duration of treatment, and meaningful outcome measures.

The authors note that while FM is a recognized medical condition with ACR-defined preliminary criteria and severity scales, what is lacking is consensus on the precise definition of widespread pain, as well as the relevance and importance of co-associated symptoms that can vary both within a patient over time, as well as between patients. Various screening questionnaires have been proposed to help identify FM or discriminate FM from other rheumatic conditions, however ACR criteria and current evidence-based guidelines recommend against determining a diagnosis based solely on the completion of a questionnaire, as the clinical encounter and narrative report of the patient remains the gold standard for diagnosis.

Treatment for FM currently consists of nonpharmacologic strategies like physical activity and stress reduction, and selected drug treatments. However, there is no universally accepted treatment algorithm or suggested duration of treatments. In fact, the paper reports that a recent meta-analysis of all treatments for FM concluded that the average benefit of pharmacologic treatments was of questionable value and the evidence for nonpharmacologic interventions was limited. The paper has proposed a patient-tailored treatment strategy that suggests a variety of pharmacologic and nonpharmacologic symptom-specific treatments for managing pain, disturbed sleep, disturbed mood, fatigue, and/or impaired function.

Meaningful outcome measurement requires measurement tools that are reliable, easy to perform, are clinically meaningful, capture disease severity, and have a defined minimal threshold for improvement. Some of the measurement challenges with FM include symptom heterogeneity and possible differing outcome goals for patients and care providers. One possible strategy may subgroup patients according to specific symptoms or targets, such as categorizing patients according to psychological factors, i.e., low or high psychological problems, with those with mostly physical symptoms likely easier to treat as compared to those with a higher degree of psychological distress. Currently available questionnaires, such as the Fibromyalgia Impact Questionnaire (FIQ) or the Fibromyalgia Survey Criteria (FSC) suffer from problems related to score calculation complexity, poor responsiveness to certain treatments, and/or a focus on some symptoms to the neglect of others.

Hamann P, Holland R, Hyrich K, et al. Factors associated with sustained remission in rheumatoid arthritis in patients treated with anti-tumor necrosis factor. *Arthritis Care & Research* April 2017;69(6):783-793.

The aim of this study was to conduct a systematic review of the literature to evaluate the current evidence for demographic and clinical factors associated with sustained remission in individuals with rheumatoid arthritis (RA) treated with anti-tumor necrosis factor (anti-TNF) therapy. Articles meeting the following criteria were included in the review: 1) phase 3 or 4 clinical trials, long-term extension trials, or cohort studies; 2) adults (≥18 years) with RA as defined by ACR 1987 or ACR/EULAR 2010 criteria; 3) report on anti-TNF therapy used for the treatment of RA; 4) disease activity reported using the Disease Activity Score (DAS), DAS in 28 joints (DAS28), Clinical Disease Activity Index (CDAI), Simplified Disease Activity Index (SDAI), ACR/EULAR remission criteria, or ACR 1981 remission criteria; and 5) report on predictors of sustained remission (i.e., at least 6 months). EMBASE, Medline and the Cochrane Controlled Trials Register were searched to September 4, 2015. The quality of studies was assessed using the Newcastle-Ottawa Scale. Meta-analysis was undertaken where unadjusted odds ratios were available for the same demographic or clinical factors from at least 3 studies.

A total of 4,438 articles were identified from the search strategy, of which 6 met all the inclusion criteria. Three studies were included in the meta-analysis. Concomitant methotrexate use was associated with an increased likelihood of achieving sustained remission. Higher baseline disease activity, increased tender joint count, increased age, increased disease duration, greater baseline functional impairment, and female gender were associated with reduced likelihood of achieving sustained remission.