

Arthritis Clinical Link Newsletter



Created and Distributed by the Mary Pack Arthritis Program

A newsletter for health professionals working with people with arthritis

December 2013

Editor's Message

While not pre-planned, this issue organically coalesced on the subject of how we define and measure quality in rheumatic disease care. It is anchored in a summary I've written on an article on this topic by Desai and Coblyn. I've also produced separate but related articles on osteoarthritis quality indicators, osteoarthritis models of care, an overview of eHealth tools for patients, and outcomes measurement, as all four topics relate to how we define and measure quality, or implement quality improvement.

As in the past few issues, I've drawn from **The Rheumatologist**, a news magazine published by Wiley-Blackwell with free Internet access at <http://www.the-rheumatologist.org>

And as always, I would love to hear your thoughts on any of this or experiences you may have had using quality indicators, implementing new models of care, or efforts made to measure outcomes. And here's hoping that 2014 brings exciting, new opportunities for each and everyone of you.

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Gearing up for MPAP Education Day 2014

Planning is underway for the 2014 Mary Pack Arthritis Program Education Day. As in past years, the event will occur in the Paetzold Auditorium at Vancouver Hospital and will be aired in real time videoconference to sites across BC and the Yukon Territories. If you'd like to join us, mark your calendars for **Thursday, May 22nd, 2014**. To date we have the following sessions confirmed: *Understanding the Teach Back Method for Improving Client Health Literacy* with Carol Wilson, *Generating a Difference with Diagnosis in Wrist Pain* with Dr. Tom Goetz, and *Less Commonly Seen Rheumatological Conditions* with Dr. Jason Kur. We are also in the process of arranging speakers for a presentation on Brief Action Planning, and eHealth Tools and Applications.

Look for an email from me come next February when we'll open up registration for the event.

Defining and Measuring Quality in Rheumatic Disease Care

The July 2013 issue of *The Rheumatologist* had a thought-provoking article by Dr. Sonali Desai and Dr. Jonathan Coblyn addressing the issue of how we best define and measure quality in rheumatic disease care. While focused on medical care, the article's message has equal resonance for allied health. Quality care includes both health care outcomes (e.g., function, mood, pain) and how efficiently care is provided. Interestingly, efficiency was mentioned in the article but not defined. A 2009 publication in **Health Services Research** called, *A Sys-*

tematic Review of Health Care Efficiency Measures by Hussey et al. noted that one way of understanding efficiency is to consider the degree of input, such as the number of PT or nursing visits, which is required to obtain a particular outcome level. Desai & Coblyn indicate that process measures may also play a role in defining quality. For example, in the subsequent discussion of Osteoarthritis Clinical Practice Guidelines and Quality Indicators, I cite the *ACR Recommendations for the Management of Hand, Hip, and Knee OA* that state that patients with knee OA should participate in cardiovascular (aerobic) and/or resistance land-based exercise, participate in aquatic exercise, and lose weight (for persons who are overweight). One measure of quality, if your clinic provides service for this population, might be to assess the percentages of the following variables: patients who are asked about their current participation in the aforementioned physical activities; patients who are provided education about the merits of physical activity, and if not sufficiently active, encouraged to be more so; and patients who are physically active at treatment onset and discharge. Quality care balances obtaining a particular level of outcome with the least amount of input, ideally at the lowest cost. Process measures fit into this picture as they typically provide guidelines based on rigorous research as to the best interventions (e.g., participation in aquatic exercise) for reaching optimal outcomes (e.g., decreased pain) in relation to a specific problem (e.g., OA knees). Desai and Coblyn argue that to improve the value of care, the equation or balance of outcomes and costs, we need to consider how to make care more efficient by redesigning care delivery to be more patient-centered. They outline several strategies by which this might be done such as the use of technology to track disease activity and functional status in real time or the substitution of frequent office visits with telephone outreach. These strategies highlight not only the particular models of care used to provide service but also the ways in which patients can be more involved in their own care, a discussion continued later in the newsletter.

Implementing quality improvement requires considerable effort and may necessitate a shift in culture. For example, Desai and Coblyn describe how their clinic was interested in determining the degree to which patients on immunosuppressive therapies were up to date with appropriate vaccinations, and if sub par, to implement an intervention to improve this metric. An initial study found that the rate of pneumococcal vaccination in their clinic immunosuppressive patients was less than 50%. The clinic then tackled the problem by developing measurement tools and setting a target for achievement. An electronic tracking system was set up to identify immunosuppressed patients who had not received a pneumococcal vaccination. This data was shared with clinical staff and rheumatologists were provided with monthly personal performance scores. However, performance levels did not improve substantially until a paper-based reminder was incorporated at the point of care. Another strategy that the clinic implemented related to best practices in DMARD prescription was to develop and post in the examination rooms a paper checklist of points to be addressed prior to starting a DMARD, such as tuberculosis screening, discussion of DMARD risks and benefits, hepatitis testing, etc. What they found was that clinician behaviour is difficult to change unless the strategy or intervention can be integrated into the usual process of care or clinical workflow.

As the prevalence of many types of arthritis continues to increase while health care funding remains stagnant at best, there is considerable motivation to consider ways of providing quality care to more clients. In summary, Desai & Coblyn would suggest that this requires identifying the quality indicators you want to target, identifying valid and reliable measures for these indicators, identifying an intervention you hypothesize will lead to improved quality, and then doing a pre- and post-test evaluation of the intervention.

Clinical Practice Guidelines and Quality Indicators in the Care of Osteoarthritis

Defining what encompasses optimal patient care first requires a review of relevant clinical practice guidelines and quality indicators (QIs). In 2011, the Institute of Medicine (IOM) defined clinical practice guidelines as

“statements that include recommendations intended to optimize patient care that are informed by a systematic review of evidence and an assessment of the benefits and harms of alternative care options.” McGlynn et al., in a 1998 *American Journal of Preventive Medicine* article, referred to QIs as measurable items related to structures, processes and outcomes of care. A 2012 article by Kotter et al. in *Implementation Science* identified, described, and compared methodological approaches to guideline-based QI development. Kotter et al. stated that while clinical practice guidelines are a suitable source from which to derive QIs there is no gold standard for guideline-based QI development. Some attributes of high-quality QIs outlined by Kotter et al. are that they are evidence-based, relevant to the selected problem and field of application, easily understood by patients and providers, changeable by behaviour, achievable, and reliably measured. The Appraisal of Guidelines for Research and Evaluation (AGREE) is a commonly accepted tool for evaluating the process by which clinical practice guidelines have been developed and the quality of the reporting <http://www.agreetrust.org>. AGREE II is the latest version of the tool, with an alternate version that has been adapted for evaluating quality indicators. In the April 2012 issue of *Arthritis Care & Research*, Hochberg et al. released the American College of Rheumatology 2012 recommendations for the use of nonpharmacologic and pharmacologic therapies in osteoarthritis of the hand, hip, and knee. The article outlined separate pharmacologic and nonpharmacologic recommendations for hand, hip, and knee OA, categorized as to those that were strongly recommended, occasionally recommended, and those for which the authors had no recommendations. One example of these recommendations is that patients with knee OA should participate in cardiovascular (aerobic) and/or resistance land-based exercise, participate in aquatic exercise, and lose weight (for persons who are overweight). **Eumusc.net** is a 3-year initiative to raise and harmonize the quality of care for rheumatic diseases and other MSK conditions across the European Union. One of the activities of this initiative has been to develop separate standards of care and health care QIs for OA and RA. As an example, one of the 12 health care QIs for OA is that if a patient with OA is overweight (as defined by a BMI ≥ 27) then he or she should receive information on weight management and offered referral to a weight management program. Marie Westby stated that while a good resource, one limitation is that they’re based on European standards and do not take into consideration work done in this area by the American College of Rheumatology and the American Academy of Orthopaedic Surgeons. That said, you may find the range of tools available on this site to be of use <http://www.eumusc.net/index.cfm>

Osteoarthritis Models of Care

A brief search of the literature revealed three documents detailing the care and management of OA in the United States, United Kingdom, and Australia. In the United States, a September 2012 document was released called, *A New Vision for Chronic Osteoarthritis Management*. Produced by the Chronic Osteoarthritis Management Initiative (COAMI) work group, it argues for an approach to OA management that includes the screening of risk factors, prevention-oriented interventions, ongoing monitoring, and comprehensive care models. More specifically, the paper notes that multiple risk factors have been identified for the development of OA, some of which are modifiable. Modifiable risk factors include obesity, joint injuries and trauma, and employment in occupations that entail a high degree of squatting and kneeling. In the same way that some medical conditions are known to have pre-clinical states, OA is hypothesized to have three phases: an abnormal physiology phase associated with abnormal metabolic activity, a silent disease phase associated with “Pre” radiographic OA, and a symptomatic disease phase commonly associated with painful radiographic OA. Smartphone apps and online tools that engage OA patients in learning more about their medical condition and becoming involved in weight management, physical activity, and other forms of regular exercise were seen as a key strategy in supporting patient self-management. In the United Kingdom, the National Institute for Health and Clinical Excellence released a February 2008 document called, *Osteoarthritis: The care and management of osteoarthritis in adults*. While labelled a clinical practice guideline, the document is more a comprehensive overview of best practices

related to OA assessment and treatment, as of the date of publication. For example, the first guideline recommends that health care professionals should assess the effect of osteoarthritis on the individual’s function, quality of life, occupation, mood, relationships, and leisure activities. The guide then takes this a step further by outlining specific prompts to be used when conducting a holistic OA assessment, e.g., assessing for other treatable sources of musculoskeletal pain such as periarticular pain, bursitis, trigger finger, etc. The treatments section of the guide is broken down into core treatments to be considered for every person with OA (where relevant), a second set of treatments for consideration when further treatments are deemed necessary, and a third set of adjunctive treatments divided into pharmaceutical options, self-management techniques, surgery, and other non-pharmaceutical treatments. One Australian model of care that is of interest is the *Osteoarthritis Clinical Pathway* project. This project focused on a number of key components including role expansion for a physiotherapist to become a musculoskeletal coordinator, care standardization through the use of a clinical information system, use of goal-setting care plans to support patient self-management, and automated performance reporting and feedback to drive ongoing quality improvement.

An Overview of eHealth Tools for Patients and Providers

A burgeoning of online tools and applications is increasingly impacting how healthcare is provided. Herewith is an overview of some of the common functions they provide and how these tools may help the healthcare system to deliver more cost-effective care.

Function	Description	Examples
Recording Health Information	Commonly known as personal health records, health journals or patient passports, such tools allow individuals to record information related to their medical conditions, medications, allergies, etc. In many instances users may specify others who are allowed to view this information.	- Telus Health Space - Capzule PHR
Tracking and Monitoring Personal Health Status & Trends	Allows patients to track & monitor symptoms such as pain, fatigue, and mood. Some include a goal-setting / action plan feature so individuals can monitor the outcome of behaviour change efforts on their symptoms	- Frax (osteoporosis) - Rheuma Track (RA) - Pain Care (chronic pain)
Supporting Self-Management Behaviour Change	Helps individuals change behaviour by allowing a more accurate monitoring of the behaviour in question, e.g., physical activity, food intake, etc.	- My Fitness Pal (exercise & diet) - Calorie Counter (food diary) - Live Happy (mood)
Communicating with Health Care Professionals and/or Informal Care Providers	Allows individuals to share information with their health care providers and/or to communicate problems or concerns with their prescribed treatment	- Wellpepper (PT-prescribed exercise) - MyMedRec (medications) - CareMonkey (medical records)

Function	Description	Examples
Providing Targeted and Generic Health Information	Increases patient's knowledge of their disease or medical treatment. Targeted application may have screening questions to match information provided based on individual needs.	- Health Tap (medical information) - How's Your Health (lifestyle management)
Learning and Behaviour Change through Health-related Games	Games may change health behaviours (e.g., eat more fruits and vegetables) or attitudes, increase knowledge, or help with health decisions.	- Brainy App - Recipalooza
Peer-to-Peer Learning, Social Support	Allows patients to share tips on managing their disease. Some support friends and family to volunteer for various caretaking roles.	- Tip Share (self-management tips) - Tyze (formal support networks)

The rationale with many of these tools is that engaged patients are more equipped to take part in shared decision-making and take disease self-management. In fact, diabetes health passport research has shown that their use increases patient engagement and fosters an active role in disease self-management. Other research has shown that use of such tools can increase self-efficacy. For information about a broad range of health tools and applications visit the newly launched *my health apps* site at <http://myhealthapps.net/>

Wellpepper, a tool created to support client adherence to prescribed home exercises, allows a therapist to record a video of the patient doing each exercise in his or her home exercise program. The benefit is that by seeing themselves do the exercise the client is more likely to do the exercise properly when on their own. Alternately, the therapist can upload pre-recorded exercise videos or photos. The therapist can assign the number of sets or repetitions for each individual exercise, or record other specific instructions. The tool sends clients exercise reminders and allows users to record exercise completion. The tool also enables communication between the client and provider, whether in terms of the client asking questions and getting support between in-person visits or in allowing the therapist to track progress. Currently Wellpepper is free for use with up to 30 clients. I see tools, like Wellpepper, as having the potential for more cost-effective care by allowing a therapist to intervene in-person during the assessment and exercise prescription stage or when problems arise, with the tool supporting ongoing exercise maintenance free of the need for weekly appointments. If in-person exercise progression is required, this could be done at pre-set intervals or based on how well a client is doing. However, as I'm not a therapist, I'd love to hear your thoughts on this. The Wellpepper website is at <http://wellpepper.com>

Patient-Reported Outcomes Measurement Information System (PROMIS)

PROMIS is a National Institutes of Health (NIH) directed initiative that has developed patient self-report health status measures for physical, mental, and social well-being that can be freely used in research or clinical care. The domain measures have been designed to be non-disease specific and are available in multiple languages for both adults and children. As this is an American initiative, Spanish is the most common language other than English, however Dutch, Portuguese, and Simplified and Traditional Chinese are a few of the many languages for which short-form versions of many of these measures are available.

There are a variety of domains for which measures have been developed including, but not limited to, emotional distress (e.g., anger, anxiety, and depression), pain (e.g., pain behaviour, and interference with life), fatigue, physical function (e.g., mobility, and upper extremity), sleep disturbance, sexual function, and social support (e.g., emotional support, and social isolation). The table below outlines some measures in development.

Domain	Target Population
Self-Efficacy with Management of Chronic Disease	Adult
Experience of Stress	Pediatric
Pain Behaviour	Pediatric
Pain Intensity	Pediatric
Pain Quality	Pediatric
Physical Activity	Pediatric
Subjective Well-being	Pediatric

The PROMIS website has been developed to achieve optimal precision through the use of relatively brief measures. An important characteristic of the PROMIS domain bank is its systematic coverage of very low through very high levels of measured experience, thus demonstrating high reliability and measurement precision. This most evident when measures are completed online using Computer Adaptive Testing (CAT). The CAT software uses item response theory to select the most informative follow-up question based on a respondent's answer to the previous question. For example, while the Physical Function domain has 124 separate items or questions, an individual completing this measure online would only answer a small subset of these questions, as the computer only asks questions deemed relevant based on the preceding answer. That is, someone at a high level of physical functioning will be asked different questions than someone with a low level of physical functioning. Once complete, CAT produces a short assessment report providing the user with information as to how their health, in relation to the domains completed, compares to the general public, as well as to people similar in age and gender. All comparative data is American. The one critique I have heard about CAT is that the server is based in the United States and thus use of CAT may be precluded in your work setting due to privacy concerns.

Paper copies are also available in either a short form version (i.e., 4 - 10 items/domain) or as a profile instrument that combines short form items into a multiple domain questionnaire. There are three Adult and three Pediatric Profile Instruments of varying lengths. If usable at your site, the brevity and ease of use of CAT makes this an attractive tool for assessing patient health status in clinical care. The website with access to CAT and paper copies of the domain measures is at <http://www.nihpromis.org> and for a review of the validity and reliability of PROMIS instruments in osteoarthritis, see my summary of the research by Broderick et al., Arthritis Care & Research (October 2013) in the Citations Section.

Introduction to the Assessment and Management of Rheumatic Disease

The next **Introduction to the Assessment and Management of Rheumatic Disease** course takes place in Vancouver from **April 7th to 10th, 2014**. This 4-day event for physiotherapists, occupational therapists and nurses is a great introduction to the field of rheumatology care for practitioners new to arthritis. As the course is

constantly updated, it can also be a nice refresher for ACE clinicians and therapists who last had formal arthritis education many years ago. As in past years, The Arthritis Society has made available a travel bursary to help defer the travel costs for BC and Yukon Territories attendees living outside the Lower Mainland. The deadline for the submission of applications is Friday, March 7th, 2014. Application forms can be obtained by contacting Paul.Adam@vch.ca

Summary of Data Presented at the Arthritis Alliance of Canada Inaugural Conference

Writing a summary of what I learned at the recent Arthritis Alliance of Canada conference and research symposium is akin to asking grade school students on the first day of class to report on their summer activities; so much happened and so where to start. The conference summarized current research achievements in many areas, as well as current gaps in knowledge, and in doing so highlighted the themes below:

- **Personalized or Precision Medicine** - there is growing interest in the idea that as knowledge grows in the area of precision medicine, we'll be better able to identify the sub-set of patients who will do best with a particular treatment, as well as those most likely to experience an adverse event. This tailoring of treatment based on individual characteristics will likely gain in momentum as we continue to learn more as to how genetic, environmental, and social factors impact an individual's potential response to treatment. And while the presentations were focused on medical management of inflammatory arthritis, I wonder how much more we could do to personalize rehabilitation care. An example of this is how a questionnaire like the Patient Activation Measure (PAM) can be used to assess a client's readiness to engage in behaviour change and then detailing different ways of intervening depending on the client's level of engagement in their own self-care.
- **Modifiable Risk Factors for OA Progression** - one presenter noted that 80 - 90% of joint arthroplasty surgeries are due to osteoarthritis (OA). Known modifiable risk factors include obesity, the use and abuse of joints at work and leisure, and weak muscles. Knee injury often leads to OA, especially for those who sustain damage to the cruciate ligament or meniscus. We now know that joints have endogenous regenerative and reparative mechanisms. And as an example, it was stated that knees have been shown to have their own supply of stem cells. We also know there is an optimal load envelope in musculoskeletal tissue, where too little or too much load is thought to contribute to joint damage. A complicating factor is that load envelope is believed to vary between individuals, joints, and joint components. With more knowledge, load envelope may be an additional factor to consider when personalizing exercises.
- **Modifiable Risk Factors for Rheumatoid Arthritis** - while it is known that smoking and gum disease related to poor oral health are two modifiable risk factors for rheumatoid arthritis (RA), an area gaining increasing interest is the role that the microbiome may play in RA onset. Wikipedia defines the microbiome as "the ecological community of commensal, symbiotic, and pathogenic microorganisms that literally share our body space." While the mechanism by which the microbiome may contribute to RA is not clear, it is thought that microbial imbalances could cause the immune system to shift to a proinflammatory milieu. Learn more at: http://www.the-rheumatologist.org/details/article/1386089/The_Microbiome.html
- **SPARCC** (Spondylitis Research Consortium of Canada) wants to significantly improve outcomes for Canadians with spondyloarthritis. One area of focus is to decrease the time from symptom onset to diagnosis. Research by Schachna et al. has shown that the mean delay from symptom onset to diagnosis in a sample of 127 patients attending an Ankylosing Spondylitis treatment centre was 10.0 ± 8.9 years. This research also showed that 68% of these individuals had consulted a physiotherapist prior to their diagnosis and 16% had consulted 3

or more physiotherapists. To decrease the time between symptom onset and diagnosis, SPARCC has created a tool called SIMPLE (*Screening for Inflammatory Pain in the LowEr*) Back. The online tool has 10 screening questions, the answers to which result in a Red light (likely AS diagnosis), Orange light (possible AS diagnosis), or Green light (unlikely AS diagnosis). The online screening tool can be found at:

http://tools.carearthritis.com/tools/tools_html.launch?toolid=1&refid=/patient.html%23tab1

- And finally, I learned that while the incidence of RA in individuals ≤ 70 years of age is 1%, in those who are >70 the incidence of RA rises to 7%. Credence is still being given to the “window of opportunity” hypothesis in the DMARD management of early RA, however it is still not clear how long that window lasts.

BC Physiotherapists must leverage the new initiative for Pharmacist Screening of Arthritis

Condensed from a submission by Greg Noonan and Alison Hoens

On September 11th 2013 a national initiative was announced for Pharmacists in over 1,200 Shoppers Drug Marts across Canada to provide arthritis screening and information. This 3-year partnership between Shoppers Drug Mart, Arthritis Consumer Experts and the Arthritis Research Center of Canada involves the provision of a self-administered joint exam and questionnaire. The intent is to assist with early detection and treatment of arthritis, particularly inflammatory arthritis. Early identification and effective treatments can reduce the progressive joint damage and marked functional limitations associated with untreated arthritic conditions. This initiative also encourages pharmacists to assist the individual, in conjunction with their family physician, with monitoring their symptoms and medication use over time.

What are the implications of this initiative?

There are already 4.6 million Canadians living with arthritis and this number is anticipated to increase substantively within the next decade. As early detection and aggressive treatment of inflammatory arthritis can prevent the previously common crippling deformity, the potential benefits to Canadians living with arthritis are evident and welcome. With respect to the implications for the physiotherapy profession, it is clear that there is an opportunity to leverage this initiative to ensure that individuals who are screened and identified as having arthritis can be appropriately referred to physiotherapists for assessment, education and support with integrating appropriate exercise and physical activity into their daily lives. This initiative provides an avenue for referrals to physiotherapy that are self-directed, pharmacist-directed and family physician-directed.

Are you ready? What can you do to ensure that you are ready to assist these patients who need the unique expertise of a physiotherapist?

Now is the time to approach your local Shoppers Drug Mart Pharmacist with your clinic’s referral information. You may wish to develop something specifically targeted to address the needs of arthritis clients or reach out to collaborate with the pharmacists and local family doctors in your community to set up an arthritis education event. Of equal and perhaps greater importance, is that you have access to the latest evidence regarding the effectiveness of exercise prescription and physical activity participation in arthritis care; information that can help you provide evidence-informed care for people living with arthritis. The following are helpful resources:

1. PABC website – provides (1) a general overview e.g. Arthritis Society resources, Cochrane Reviews and (2) practice guidelines and recommendations for OA and for RA (including nonpharmacological interventions)

2. Patient Fact Sheet on Exercise for Arthritis from the American College of Rheumatology website http://www.rheumatology.org/Practice/Clinical/Patients/Diseases_And_Conditions/Exercise_and_Arthritis/
3. Exercise is Medicine Canada - a national initiative with which CPA is collaborating <http://www.exerciseismedicine.ca/>
4. Physical Activity Line of BC – a free counselling service by exercise physiologists provides guidance that includes arthritis content, physical activity counselling, and transition from therapy into the community. You may wish to share this information with the Pharmacist in your local Shoppers Drug Mart. <http://www.physicalactivityline.com/>
5. Screening Tools
 - a. BC Medical Association: Rheumatoid Arthritis: Diagnosis, Management and Monitoring, Sept. 30, 2012. Available at: http://www.bcguidelines.ca/pdf/rheumatoid_arthritis.pdf
 - b. Apps: Arthritis ID Pro (for the health care provider) and Arthritis ID (for patients) to screen for inflammatory arthritis <http://www.arthritisresearch.ca/arc-links/arthritis-apps/arthritis-id-pro-app>
6. Community resources for patients
 - a. Self Management BC is a joint initiative between the University of Victoria and the Provincial Ministry of Health. Several programs may be of benefit to patients affected by arthritis, all of which can be found at <http://www.selfmanagementbc.ca/CommunityPrograms>
 - i. Active Choices program - coaches and supports persons with chronic disease (including arthritis) regarding exercise and physical activity
 - ii. Arthritis/Fibromyalgia Self-Management program – provides information and practical skills for managing various forms of arthritis.
 - iii. Chronic Pain Self Management Program – provides patients strategies to better manage their symptoms and daily lives.
 - b. Dr. Mike Evans you-tube video promotes the importance of physical activity, especially with chronic disease <http://www.youtube.com/watch?v=aUaInS6HIGo>

Arthritis-related Citations

Kaptein SA, Backman C, Badley EM, Lacaille D, Beaton DE, Hofstetter C & Gignac MAM. *Choosing where to put your energy: A qualitative analysis of the role of physical activity in the lives of working adults with arthritis.* Arthritis Care & Research July 2013; 65(7): 1070-1076. Eight focus groups were held with 40 participants (24 women and 16 men) between the ages of 29 and 72 with either OA or inflammatory arthritis as a diagnosis. Analysis revealed 5 major themes. 1) *Physical activity (PA) as a potential cause of arthritis* - some participants, especially those with osteoarthritis, believed that injuries occurring as a result of PA or treatments for injuries (e.g., knee surgery) had played a role in the onset of their arthritis. 2) *The reciprocal impact of arthritis on PA and PA on arthritis* - many participants identified the importance of staying active while at the same time noting that some types of PA aggravated their condition. In general, demanding types of PA had been

dropped in favour of gentler, less physically-demanding forms of PA. 3) *Difficulties, potential benefits, and harms of PA* - there was considerable uncertainty as to the types of PA that relieved or aggravated arthritis pain. 4) *Making choices about PA involvement* - deciding what and/or how much PA to do was complicated by the fact that symptoms associated with PA were often seen as being intermittent and unpredictable, thus defying a simple cause and effect relationship between activity, and symptom onset and duration. 5) *Social support* - encouragement from family or having others with arthritis as a role model was a motivation to be more active.

Demmelmaier I, Bergman P, Nordgren B, Jensen I & Opava CH. *Current and maintained health-enhancing physical activity in rheumatoid arthritis: A cross-sectional study.* Arthritis Care & Research July 2013; 65(7): 1166-1176. Questionnaires were mailed to 5,391 individuals between the ages of 18 and 75 from a large Swedish RA registry. Individuals were from 6 clinics chosen to encourage participation from both urban and rural areas, as well as different parts of the country. Current and maintained physical activity was assessed using the International Physical Activity Questionnaire (IPAQ) and a modified version of the Exercise Stage Assessment Instrument (ESAI). Independent variables included age, sex, time since first visit to a rheumatology clinic, household size, education, income, literacy, comorbidities, pain, fatigue, perceived general health, and outcome expectations of physical activity. The Health Assessment Questionnaire - Disability Index (HAQ-DI) measured functional activity, the exercise self-efficacy scale (ESES) measured confidence in exercising under 6 conditions known to be barriers to exercise, the Social Support for Physical Activity Scale measured ways in which family or friends were perceived as being supportive to exercise, and a modified Fear-Avoidance Beliefs Questionnaire assessed beliefs about physical activity as a cause of pain and injury. Questionnaires were completed by 3,152 respondents. A total of 69% of respondents reported current health-enhancing physical activity (HEPA), while 21% and 14% reported maintained aerobic physical activity and muscle strength training, respectively. The most salient and consistent factors explaining variation in both current and maintained HEPA were self-efficacy, social support, and outcome expectations related to physical activity.

Heimans L, Van den Broek M, Cessie LE et al. *Association of high body mass index with decreased treatment response to combination therapy in recent-onset rheumatoid arthritis patients.* Arthritis Care & Research August 2013; 65(8): 1235 – 1242. This study attempted to determine if treatment response, in terms of Disease Activity Score (DAS), patient-reported outcomes, and radiography, was related to body mass index (BMI) in newly diagnosed patients with rheumatoid arthritis (RA). Patients were randomized to 1 of 4 treatment groups: 1) sequential monotherapy starting with methotrexate, 2) step-up combination therapy starting with methotrexate, 3) initial combination therapy with methotrexate, sulfasalazine, and tapered high dose prednisone, or 4) a combination of methotrexate and infliximab. Insufficient treatment response was defined as a DAS score >2.4, in which case treatment was either changed or added to. Treatment response was compared between normal weight patients (BMI <25 kg/m²) and overweight or obese patients (BMI ≥25 kg/m²). Radiologic damage progression was assessed using the Sharp/van der Heijde score, taking the mean scores of 2 independent readers, blinded for patient identity, who evaluated all radiographs of hands and feet in nonchronological order. During the statistical analysis results were adjusted for sex, age, smoking habits, rheumatoid factor, and baseline DAS. Dependent variables included tender joint count, swollen joint count, ESR, C-reactive protein (CRP) level, patients' assessment of global health and of pain, and Health Assessment Questionnaire (HAQ) score. A total of 508 patients participated in the study. After one year of study, patients with high BMI had higher disease activity, a higher HAQ score, and a higher level of self-reported pain. For DAS components, a difference was found in tender joints and patients' assessment of global health, but not swollen joints. Radiologic progression in year 1 and over 8 years of follow-up was similar in both BMI groups. In the discussion, the authors noted that

rather than being the result of a high ESR or swollen joint counts, the higher DAS scores in patients with greater BMI appeared to be related to pain.

Stanmore EK, Oldham J, Skelton DA et al. *Risk factors for falls in adults with rheumatoid arthritis: A prospective study.* Arthritis Care & Research August 2013; 65(8): 1251 - 1258. The study sought to identify fall risk factors in adults with rheumatoid arthritis (RA). Participants 18 years of age and older with a diagnosis of RA were recruited from 4 rheumatology clinics in the Northwest of England. Measurements were taken at baseline and patients were then followed for 1 year using daily falls calendars (mailed monthly) and a monthly telephone call. Variables thought to cause or predict falls included disease activity as measured by the number of tender/swollen joints, the Disease Activity Score (DAS), and the Health Assessment Questionnaire (HAQ). Fear of falling was measured using the Short Falls Efficacy Scale and falls risk was measured using the Falls Risk Assessment Tool. Other variables included vision (self-report question), pain and fatigue (visual analog scales), comorbidities, and previous fractures, surgery or joint replacement(s). Medical conditions and surgeries were verified using medical records and medical records were also used to check history and medication use. Finally, lower extremity muscle strength and balance were assessed using the Chair Stand Test and the Four-Test Balance Scale. A fall was defined as “an unexpected event in which participants come to rest on the ground, floor, or other lower level”. There were 535 study participants, of whom 36% experienced a fall in the 1-year follow-up period. A history of a single or multiple falls was the best predictor of falls. Other factors shown to have the best predictive value for a fall included having any swollen or tender lower extremity joints (hip, knee, and ankle), the use of psychotropic medications, and fatigue.

Bourre-Tessier J, Peschken CA, Bernatsky S et al. *Association of smoking with cutaneous manifestations in systemic lupus erythematosus.* Arthritis Care & Research August 2013; 65(8): 1275 - 1280. The study purpose was to assess the possible association between current, past, and lifetime smoking status, and cutaneous activity and damage in patients with systemic lupus erythematosus (SLE). Participants were ≥ 16 years of age recruited from 14 centers across Canada. Cutaneous manifestations were measured using the SLEDAI-2K (rash and alopecia), the SDI (alopecia, extensive scarring, and skin ulceration), and ACR revised criteria for SLE (discoid rash, malar rash, and photosensitivity). Mucosal ulcers were also studied. Ever smokers were defined as having smoked regularly (at least 1 cigarette/day) for ≥ 3 months of their lifetime. A total of 1,346 patients participated in the study, and of these 41.2% reported ever smoking. Of those with a history of smoking, 34.1% were current smokers and 65.9% were past smokers. In total, 28.4% of participants had some mucocutaneous activity. Being a current smoker was associated with an increased risk for active skin manifestations with the number pack-years also being a predictor of risk. Past smoking was associated with the ACR criteria of discoid rash and photosensitivity. There was also an association between current smoking and active rash. In conclusion, the author’s recommended counseling patients on smoking cessation.

Virayavanich W, Alizai H, Baum T, et al. *Association of frequent knee bending activity with focal knee lesions detected with 3T magnetic resonance imaging: Data from the osteoarthritis initiative.* Arthritis Care & Research September 2013; 65(9): 1441 – 1448. The goals of this study were to analyze the association between repetitive knee bending activity and focal knee abnormalities over a 3-year period, while separately examining the impact of knee bending activities on different compartments of the knee. Study participants were between the ages of 45 and 55, had a baseline BMI between 19 and 27 kg/m², a baseline WOMAC pain score of zero in both knees, and a baseline Kellgren/Lawrence (K/L) ≤ 1 in the right knee. The Physical Activity Scale for the Elderly (PASE) questionnaire was used to quantify physical activity. Repetitive knee bending was assessed using a questionnaire that asked participants to identify, if on most days, they climbed a total of 10 or more stairs, knelt

for 30 minutes or more, squatted or did deep knee bends for 30 or more minutes, or moved objects weighing 25 pounds or more by hand. Baseline weight-bearing posteroanterior bilateral knee radiographs were taken using the fixed flexion technique. MRIs were obtained using 3.0T scanners and then evaluated using a modified semi-quantitative Whole-Organ Magnetic Imaging Score (WORMS). Cartilage morphology was analyzed for the patella, trochlea, medial and lateral femur, and medial and lateral tibia using an 8-point scale where 0 = normal thickness and signal and 6 = diffuse ($\geq 75\%$ of the region) full-thickness loss. Meniscal morphology was analyzed in the medial and lateral sides of the anterior, body, and posterior region using a 4-point scale ranging from 0 (normal) to 4 (complete destruction and maceration of the meniscus). There were 115 study participants. Of these, 40 reported exposure to one of the frequent knee bending activities and 42 reported engaging in 2 or more of these activities. This latter group was categorized as frequent knee benders. Frequent knee bending was found to be associated with an increased risk of prevalence and progression of cartilage abnormalities and with an increased risk of worsening meniscal damage, especially in the patello-femoral compartment.

Shigaki CL, Smarr KL, Siva C, Ge B, Musser D & Johnson R. *RAHelp: An online intervention for individuals with rheumatoid arthritis.* *Arthritis Care & Research* October 2013; 65(10): 1573 – 1581. This study sought to determine the effectiveness of an online, multi-modal, cognitive-behavioral intervention for rheumatoid arthritis (RAHelp). The program and website were created to replicate a face-to-face, professionally-led, empirically validated intervention developed by Dr. Jerry Parker, a psychologist, and his colleagues at the University of Missouri. Unlike more traditional self-management programs using lay leaders, this intervention relied on a masters-prepared counsellor with training in cognitive-behavioral group interventions to administer and monitor the website and engage in weekly 15 - 30 minute phone check-ins with participants. The website included an educational program, social networking tools, and assessment tools for study participants, as well as monitoring tools for the clinician leader. The objective of the RAHelp program was to increase self-efficacy and the skills required to cope with the effects of RA. Educational modules included but were not limited to RA Stressors, Life Goals, Managing Change, and Relationships. Participants were expected to cover one of the eight modules each week at their convenience. The website also featured a personalized to-do list, current news, and a resources library. A “home work” journal allowed participants to self-monitor symptoms and record positive happenings or challenges and difficulties. Weekly phone check-ins were used to answer questions, facilitate the integration of new concepts with prior educational content, and encourage application of skills learned. Participant-to-participant interactions took place in the “RAHelp Village” area of the site that included a discussion board, biweekly scheduled chats, and a secured messaging system. The study used a waiting-list control group. Inclusion criteria were 18 years of age or older, RA diagnosed by a rheumatologist, and a stable RA medication regimen for ≥ 3 months. Those with previous self-management program exposure, uncontrolled psychiatric diagnoses, or uncontrolled medical co-morbidities were excluded from the study. The study used the AIMS2, Arthritis Self-Efficacy Scale, Center for Epidemiologic Studies Depression Scale (CES-D), Quality of Life Scale, Rapid Assessment of Disease Activity in Rheumatology (RADAR), Social Provisions Scale, and the University of California, Los Angeles Loneliness Scale as outcome measures. Ninety-three participants completed the study, of whom 44 were in the intervention group and 49 in the waiting list group. Compared to the waiting-list control the intervention group had significant improvements in both self-efficacy and quality of life, both at study completion and 9-months post-intervention.

Kim SC, Schneeweiss S, Liu J & Solomon DH. *Risk of venous thromboembolism in patients with rheumatoid arthritis.* *Arthritis Care & Research* October 2013; 65(10): 1600 – 1607. The objectives of this study were 1) to identify the rate of incident venous thromboembolism (VTE) in a cohort of patients with RA compared to the general population of those without RA, 2) to assess the VTE risk in RA patients compared to non-RA patients

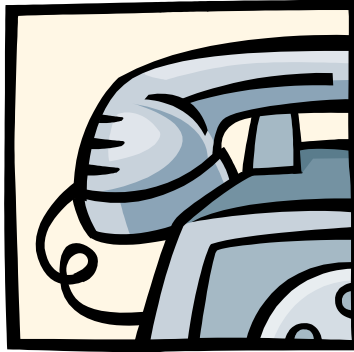
adjusting for known VTE risk factors as well as baseline acute-phase reactant levels, and 3) to determine the proportion of VTE cases in the presence of major VTE risk factors such as recent hospitalization, surgery, and malignancy during the followup period. The data sources for this study were a commercial US health plan and a small Medicare population. Adult patients who had at least 2 visits 7 days apart coded with the ICD-9 classification for RA as well as 1 filled prescription for a disease-modifying antirheumatic drug (DMARD) were eligible for the RA cohort. The index date for the RA cohort was the date of the first dispensing of a DMARD. Patients with 1 or more diagnostic codes for DVT or pulmonary embolism (PE), solid tumors, hematologic malignancies, or myelodysplastic syndrome recorded in the 12-month period prior to the index date were excluded. To ensure that only incident cases of VTE were examined, subjects with claims for DVT or PE, or dispensings for anticoagulants in the 12-month period prior to the index date were excluded from both cohorts. The non-RA cohort, those subjects who had never had an RA diagnosis during the study period, was identified and the exclusion criteria applied. The index date for the non-RA cohort was the date of the second physician visit after at least 12 months of continuous health plan eligibility. The non-RA cohort was then matched to the RA cohort on the basis of age, sex, and index date (± 30 days) in a 4:1 ratio. Patients in both cohorts were followed from the index date to the first of any of these events: development of DVT, PE, loss of health plan eligibility, end of study database, or death. The primary outcome was defined as a hospitalization for incident VTE (either PE or DVT) based on the discharge diagnosis. The secondary outcome was a diagnosis of VTE upon discharge and a prescription for anticoagulants within 10 days of discharge. Variables related to the development of VTE were assessed using data from the 12 months before index date and included demographic factors (age and sex), comorbidities (e.g., hypertension, malignancy, smoking, obesity, history of various types of surgeries), medications (oral contraceptives and hormone replacement therapy), and health care utilization factors (e.g., number of visits to any physician). To quantify comorbidities, the study authors calculated an adapted Charlson Comorbidity Index, a summative score based on 19 major medical conditions. Outpatient lab data such as levels of acute-phase reactants (i.e., ESR or CRP levels) at baseline were available for a subset of subjects. In subjects who developed VTE during the study, major clinical risk factors or provoking factors for VTE such as malignancy 90 days before and after the VTE and hospitalization and surgeries 90 days before the date of VTE events were assessed. The final study cohort included 22,143 RA patients and 88,572 non-RA patients. During the study period 713 patients (0.6%) of the total study population were hospitalized for VTE. Incident VTE occurred in 6 per 1,000 RA patient-years, a rate that was 2.4 times higher than the rate for the non-RA cohort. There was a 40% increased risk of developing VTE in RA versus non-RA patients after adjusting for baseline VTE risk factors. Finally, one-third of patients who developed VTE had at least 1 major risk factor such as acute hospitalization, surgery, or a malignancy diagnosis 90 days prior to or following the VTE event.

Broderick JE, Schneider S, Junghaenel DE, Schwartz JE & Stone AA. *Validity and reliability of patient-reported outcomes measurement information system instruments in osteoarthritis.* Arthritis Care & Research October 2013; 65(10): 1625 - 1633. For a description of the Patient-Reported Outcomes Measurement Information System (PROMIS), see my summary on page 5. The purpose of the study was to evaluate the validity and reliability of PROMIS measures for pain intensity, pain interference, physical functioning and fatigue in patients with osteoarthritis (OA). The study included a sample of 100 patients with OA and a comparison sample of 100 individuals from the general population (GP). The inclusion criteria for both samples were age ≥ 21 years, fluency in English, and high speed internet access. Participants in the OA sample were required to have a physician-confirmed diagnosis of OA. The GP comparison sample was chosen to match the OA sample in terms of age, sex, race, and ethnicity. OA participants completed daily short form versions of each of the four measures, as well as a weekly Computer Adaptive Testing (CAT) panel of questions. The GP sample provided daily and weekly assessments for all domains, other than physical functioning. The decision to exclude physical func-

tioning was made because the GP sample also acted as a comparison group for other clinical samples and thus there were concerns related to response burden. Known-group validity for CATs was shown with large effect sizes for pain intensity (1.42*), pain interference (1.25*) and fatigue (0.85*). Ecological validity was also established through high correlations between aggregated daily measures and weekly CATs (≥ 0.86). Finally, test-retest reliability over 7 days was very good (≥ 0.80). *(0.2 has been defined as a small effect size, 0.5 as a medium effect size, and 0.8 as a large effect size).

Rhee RL, Von Feldt JM, Schumacher HR & Merkel PA. *Readability and suitability assessment of patient education materials in rheumatic diseases.* Arthritis Care & Research October 2013; 65(10): 1702 - 1706. The study purpose was to assess both the readability and suitability of commonly used patient education resources for rheumatic diseases. The authors focused on osteoarthritis (OA), rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and vasculitis in order to look at diseases of both high and low prevalence, and high and low complexity in terms of disease pathophysiology. Education materials were retrieved from popular health websites including the American College of Rheumatology, Arthritis Foundation, Mayo Clinic Health Information, National Institute of Arthritis and Musculoskeletal and Skin Diseases, UpToDate Basics, UpToDate Beyond the Basics, Vasculitis Clinical Research Consortium, and the Vasculitis Foundation. Educational content was chosen from these sites based on items judged by the authors to be reputable, accurate, and representative of publicly available patient education resources. Resources were obtained between December 2011 and May 2012 with a total of 23 items evaluated. Readability was assessed using the Flesch-Kincaid Test. Items were not assessed until all illustrations, tables, captions, footnotes, and web links were removed. Each item was then tested twice, the first as is and the second after having removed disease and medication names, such as rheumatologist and azathioprine, whose use is often unavoidable. Suitability was measured using the Suitability Assessment of Materials (SAM), a tool that assesses written educational resources in terms of content, literacy demand, graphics, layout and typography, learning stimulation and motivation, and cultural appropriateness. Three readers were trained in the SAM scoring techniques and the mean SAM scores were used in the analysis. The results showed that the means of the Flesch-Kincaid scores for each of disease-specific education resources were high both before and after removing disease and medication names, although removing medical terms resulted in readability scores closer to the recommended target in all cases. Grade levels ranged from 8.2 to 9.5 for OA, 8.6 to 10.0 for RA, 8.9 to 9.9 for SLE, and 10.0 to 12.6 for vasculitis. Of all the sites included in the study, it was only the three educational resources from UpToDate Basics that met the recommended standard of a 6th grade reading level. The mean suitability score for each disease, expressed as a percentage of the total possible score, was as follows: OA (68%), RA (56%), SLE (57%) and vasculitis (45%). A score of 0 – 39% is considered not suitable, 40 – 69% is adequate, and 70 – 100% is superior. The study concluded that patient education materials for rheumatic disease are still inadequate to educate patients.

Clinical Consultation available through your ACE membership



As an ACE member, you have access to physical therapists, occupational therapists and a nurse with many years of rheumatology experience. If you have a clinical question or complex or challenging client and would like to consult with one of our experienced clinicians, please contact one of the people listed below. We will return your call or e-mail as quickly as possible.

You can also contact senior clinicians in our regional centres (Cranbrook, Penticton & Victoria). They are a valuable local resource.

An ACE member who has used this service in the past stated: "Great resource. Please continue!"

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