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CRA SCR

The Journal of the Canadian Rheumatology Association

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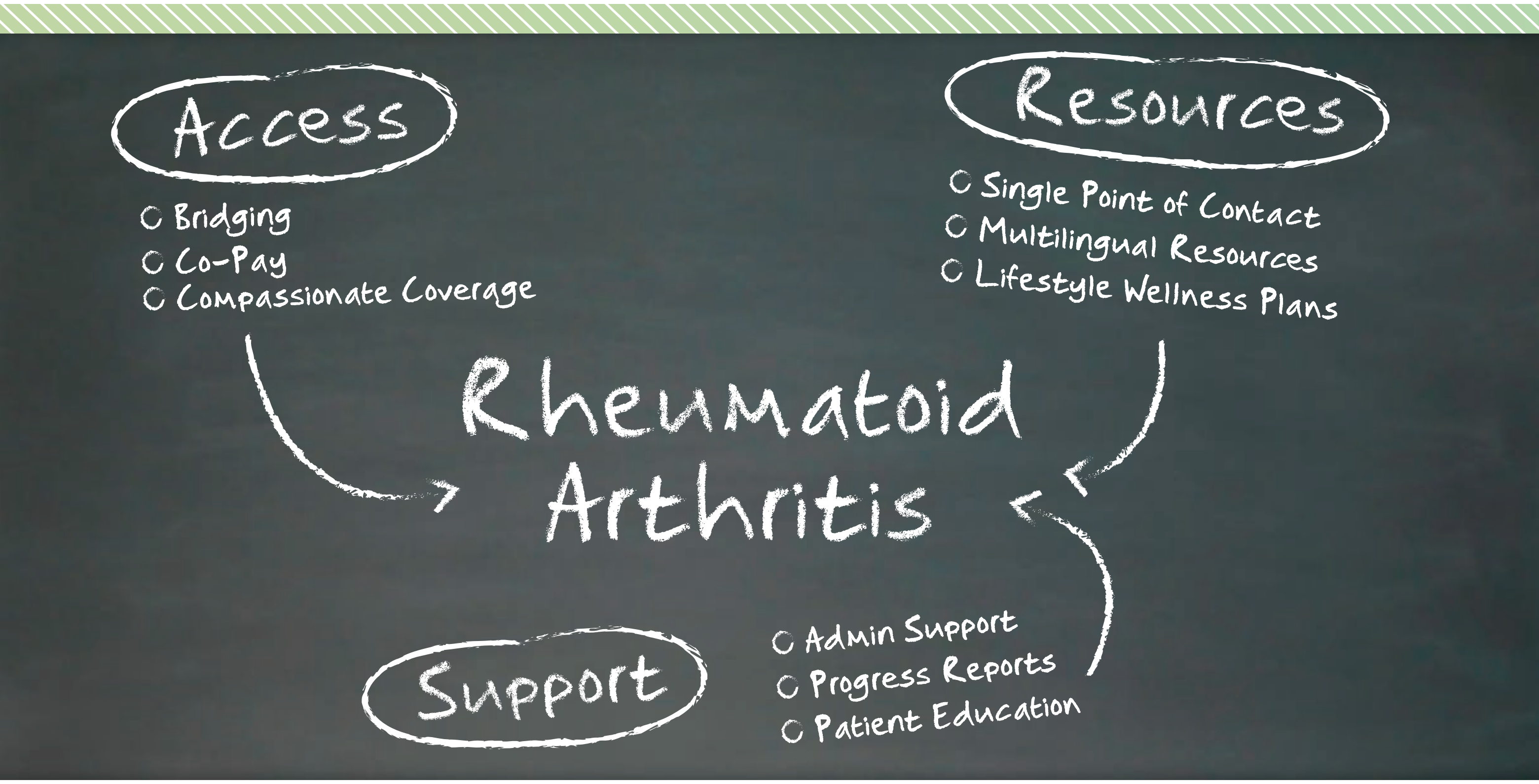

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EDITORIAL

Dealing with Frustrations in the Interactions Between Rheumatologists and Retail Pharmacists

By Philip A. Baer, MDCM, FRCPC, FACR

> *"Insanity: Doing the same thing over and over again and expecting different results."*
> *- Albert Einstein*

Pharmacy was not a career I ever considered personally, but I must admit it now holds a certain attractiveness. The range of this versatile healthcare profession extends from hospital work to industry, from running a small business to creating formularies for millions of patients, from academic research to community dispensing, and from working in long-term care to running government drug plans. Pharmacists are becoming important members of many rheumatology teams under new models of care.

However, the theoretical esteem with which I regard pharmacists keeps bumping up against the day-to-day realities of physician-pharmacist interactions which I experience in clinical practice. Is it them or is it me? For instance, I am a big believer in giving maintenance non-narcotic medications in large quantities and with multiple refills, thus typically a three-month supply with five refills. In my mind, this saves the patient dispensing fees and trips to the pharmacy. With my electronic medical records (EMRs), I can tell at each visit if a prescription needs renewing before the next visit or not. Yet, I continue to receive faxes from pharmacies requesting refills of prescriptions which have not run out based on my chart. What gives?

Perhaps the patient has changed pharmacies and now needs a whole set of new prescriptions? I asked several patients whose pharmacies frequently request such refills if that was the case—they said no. In fact, one of a pharmacy's most valuable assets is its roster of regular customers and their prescription lists. Pharmacy ads extol the simplicity of transferring over one's prescriptions from another pharmacy. My medical building's pharmacist confirmed that new prescriptions and the prescriber's involvement are not required, unless there are no more refills listed at the prior pharmacy or controlled drugs are involved. It is a simpler process than changing all your pre-authorized payments when moving a bank account to a new bank.

I also wondered why I would get faxes for refills shortly after a patient had been in for a visit and been handed a new prescription. Some remain unexplained, but some were caused by patients not promptly submitting my prescriptions to their pharmacist, leading the pharmacist to then ask me for a refill. I now tell all patients that, whether they are in immediate need of their medications or not, it would be a good idea to file my prescription at their pharmacy to extend their refill period and to ensure the prescription is not lost in the interim. Perhaps I should take up faxing all prescriptions to the pharmacy instead of handing them to patients in the office. Eventually, e-prescribing should solve this problem.

I have many patients who have permission to vary doses of their medications depending on their clinical condition—including nonsteroidal anti-inflammatory drugs (NSAIDs), steroids, even disease-modifying antirheumatic drugs (DMARDs) and biologics. Others are on tapering or escalating drug regimens, where the precise duration of each step up or down is subject to trial and error. I write prescriptions with PRN dosing, or indicate that the dose may vary within a certain range, or that the dose written is a reduced or augmented dose compared to my last prescription. That works most of the time. However, there are some pharmacists who simply cannot handle dose uncertainty. A patient with a perfectly good prescription for methotrexate (MTX) 15 mg/weekly is told to try reducing the dose to 12.5 mg/weekly, and to stay on the lower dose if doing well or revert to the higher dose if worse. I do not need a fax a week later asking for a new prescription at 12.5 mg/week after the patient told their pharmacist they were feeling fine so far on the lower dose.

Some of my other pet peeves regarding pharmacists:

1. Excessive and unfounded worries regarding possible interactions between low-dose MTX and NSAIDs or proton pump inhibitors (PPIs). My solution is to use the recommended CRA message on my MTX prescriptions prophylactically. See the CRA website at *www.rheum.ca/en/the_cra/drug_updates*.
2. Poorly conceived patient drug information sheets, many derived from American databases, which are difficult to comprehend and scary enough to convince patients not to start required medications. My solution is to hand out the *www.rheuminfo.com* sheet for the prescribed medications in advance, again as prophylaxis before the patient reaches the pharmacy.

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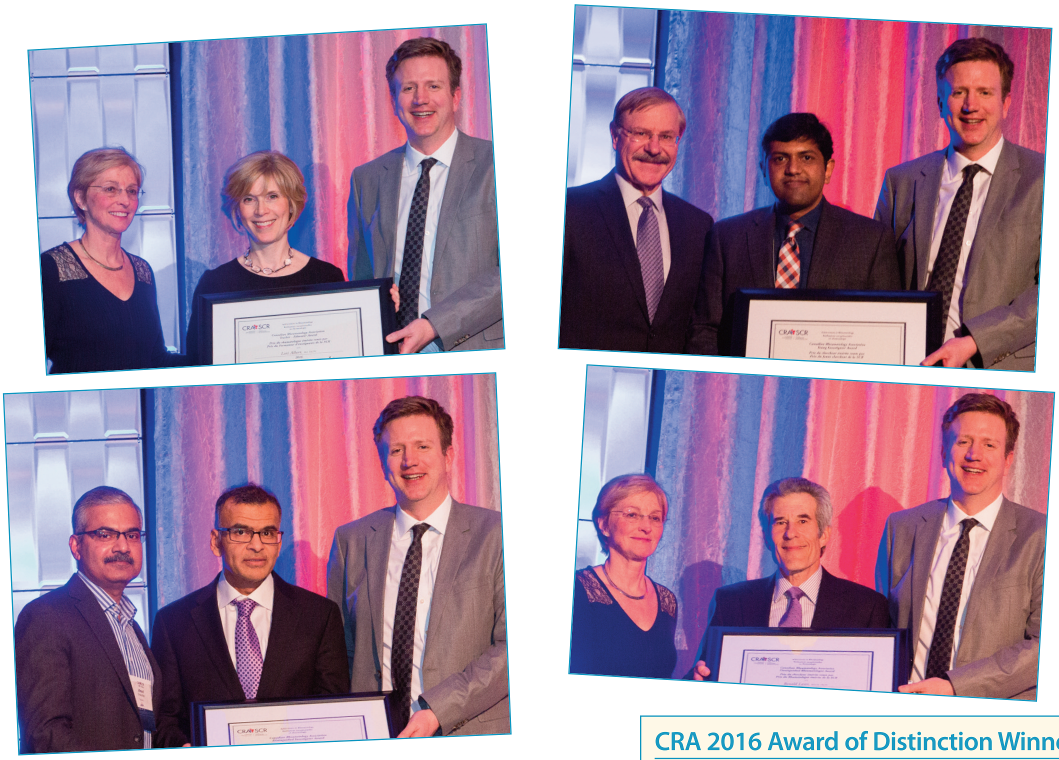
WHAT'S THE CRA DOING FOR YOU?

Spotlight on the 2016 CRA Award Winners



CRA: Call for Abstracts

You are invited to submit abstracts for presentation during the 2017 CRA Annual Scientific Meeting and AHPA Annual Meeting!

Deadline for submissions is **October 17th, 2016**. Details are available at *https://rheum.ca/en/events/upcoming_events/abstracts_2017*.

The 2016 CRA awards were presented at the CRA Gala Dinner on February 19th, 2016, in Lake Louise, Alberta. Congratulations to all of this year's recipients!

CRA 2016 Award of Distinction Winners

Clockwise from top left:

CRA Teacher-Educator Award
Dr. Lori Albert, University of Toronto

CRA Young Investigator Award
Dr. Nigil Haroon, University of Toronto

CRA Distinguished Rheumatologist Award
Dr. Ronald Laxer, University of Toronto

CRA Distinguished Investigator Award
Dr. Proton Rahman, Memorial University

For a complete list of all CRA 2016 award recipients, refer to *https://rheum.ca/en/the_cra/award_recipients/2016*.

Dealing with Frustrations in the Interactions Between Rheumatologists and Retail Pharmacists *(continued from page 3)*

Finally, as I was writing this piece, I realized that even patients are sometimes unhappy enough with their pharmacists to be driven to vent their frustrations publicly. I was reading one of my favorite investment blogs written by an iconoclastic investment manager, Jamie Hymas. In the middle of his daily market comments, he was upset enough with his pharmacist refusing to split his pill tablets to comment at length. You can read his complaints at *www.prefblog.com*; look for the April 1, 2016 entry.

It is not clear if Einstein is the originator of the insanity quotation headlining this editorial. It is clear that physician-pharmacist interactions would benefit from changing the current model to achieve better results with less aggravation for everyone. Here's hoping it will happen sooner rather than later!

Philip A. Baer, MDCM, FRCPC, FACR
Editor-in-chief, CRAJ
Scarborough, Ontario

2016 CIORA Awards

By Janet Pope, MD, MPH, FRCPC

CIORA ICORA
CANADIAN INITIATIVE FOR OUTCOMES IN RHEUMATOLOGY CARE
INITIATIVE CANADIENNE POUR DES RESULTATS EN SOINS RHUMATOLOGIQUES

The Canadian Initiative for Outcomes in Rheumatology cAre's (CIORA) mission, as a unique granting organization, is to improve the care of Canadians living with rheumatic diseases. To that end, CIORA awards grants to scientists whose research helps advance our knowledge and understanding of rheumatic diseases and might not otherwise be eligible for other peer-reviewed funding.

CIORA 2016 Grant Awards

Incorporating Patients' Preferences into Canadian Rheumatology Association Treatment Recommendations for Rheumatoid Arthritis[1]
Principal Investigator: Dr. Glen Hazlewood
Award: $46,970

Needs and Barriers to Pregnancy Counselling in Women with Rheumatoid Arthritis[1]
Principal Investigator: Dr. Évelyne Vinet
Award: $68,600

Hip Fracture in Patients with Rheumatoid Arthritis: Incidence, Complications and Health Services Used. (HIRA Study)[1]
Principal Investigators: Dr. Diane Lacaille & Dr. Allyson Jones
Award: $54,872

Strategies to Enhance Influenza/Pneumococcal Vaccination Coverage Among Rheumatoid Arthritis Patients[1]
Principal Investigators: Dr. Inès Colmegna & Dr. Kim Lavoie
Award: $119,000

Understanding the Barriers to Self-Management Support for Underserved Populations Living with Arthritis and Co-morbidities and Developing Patient-derived Tools for Healthcare Policy and Practice[1]
Principal Investigators: Dr. Susan Mills and Dr. Diane Lacaille
Award: $116,858

Quality of Referrals to Pediatric Rheumatology in Northern Alberta and its Effects on Access to Care[1]
Principal Investigator: Dr. Mercedes Chan
Award: $12,769

Measuring Geographic Variation in Access to Care for Rheumatoid Arthritis Patients and Related Outcomes: A Patient-centred Approach[2]
Principal Investigators: Dr. Claire Barber & Dr. Deborah Marshall
Award: $117,846

Assessing the Provision, Patterns, and Costs of Waiting for Rheumatology Care: A Step Towards Optimizing the Care of Rheumatic Diseases[2]
Principal Investigators: Dr. Jessica Widdifield, Dr. Sasha Bernatsky & Dr. Bindee Kuriya
Award: $120,000

Pillars: 1. Awareness/Advocacy/Education; 2. Early Access for Rheumatic Disease Patients; 3. MultiDisciplinary Care Teams.

More specifically, CIORA's grant program supports projects that are sustainable and help promote one of its three core pillars: Awareness/Advocacy/Education, Early Access for Rheumatic Disease Patients, and Multidisciplinary Care Teams. Ten percent of each grant is withheld until the final report is received, which allows CIORA to assess how its grants are being used and to evaluate the success of the program overall. CIORA is also acknowledged in each presentation and publication, which also promotes the success of its program.

CIORA's grants review panel works in much the same way as that of the Canadian Institute of Health Research (CIHR). Individual reviewers, who are often past awardees, score each grant, which is then followed by a panel discussion to determine a final consensus score. Dr. Paul Fortin, is the current chair, and we are indebted to him for his leadership.

CIORA held its 9th grant competition in March and received 29 grant applications this year, which is a record number.

Congratulations to the 2016 grant recipients! CIORA funded three one-year grants and five two-year grants for a total of just over $650,000. This was a very competitive cycle. The topics for CIORA grants are very broad with many unique ideas. Special thanks to our sponsors.

Janet Pope, MD, MPH, FRCPC
Professor of Medicine, Division Head,
Division of Rheumatology, Department of Medicine,
St. Joseph's Health Care, Western University
London, Ontario

Exercise is Medicine: Keeping Kids with Arthritis Active

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By Kristin Houghton, MD, MSc, FRCPC, Dip Sports Med

The importance of physical activity (PA) to health and well-being is clear. There is a linear relationship between PA and health: those who are active and fit live longer, happier and healthier lives. However, even with common knowledge of the tremendous benefits of PA, the high prevalence of physical inactivity remains a major public-health concern. It is estimated that at least 50% of Canadian children are not active enough for optimal growth and development and 90% of children do not meet the recommended PA guidelines (60 minutes of daily moderate-to-vigorous physical activity [MVPA] with at least three days per week of vigorous-intensity activity, including activities that strengthen muscle and bone).

Exercise is medicine that everyone needs. Exercise is the ideal "drug": it is safe, inexpensive, widely available and the "dose" can be individualized. Exercise is now considered an important part of therapy for children with juvenile idiopathic arthritis (JIA). Research has shown that exercise therapy is safe and may improve short-term clinical outcomes, function, quality of life and physical fitness. Children with active arthritis may begin with therapeutic exercises focusing on improving range of motion, neuromuscular strength and proprioception around their joints. If morning stiffness is a problem, children can exercise later in the day. Children who have inactive arthritis can participate in age-appropriate recreational and competitive athletics.

As physicians we can encourage PA and exercise. The very act of asking about PA tells the patient/family that PA is important. Physicians should ask about current PA (the exercise "vital sign") at every visit. Studies in primary care show that a two-to-four-minute intervention can effectively promote PA. Exercise prescription follows the frequency, intensity, time (duration) and type (FITT) principle. In patients who are inactive, begin with lower-intensity PA and progress in duration and intensity over time with a goal of reaching the recommended one hour of MVPA per day. It is important to write an exercise prescription as this signals that PA and exercise is therapeutic. If a child requires individualized adaptation of the exercise prescription for a unique or complex clinical problem, referral to physical therapy or another exercise specialist is advised. Finally, it is important to follow up to chart progress, solve problems and set goals.

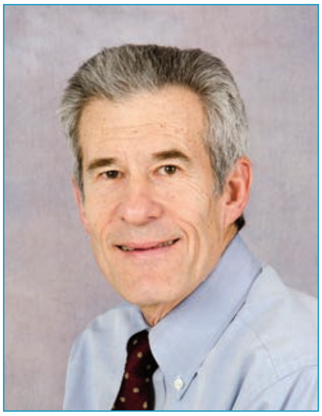
Continued on page 9

"Cassie and Friends" team at the 2016 ScotiaBank Charity Challenge at the Vancouver Half-Marathon and 5K on June 26, 2016. "Cassie and Friends" is a parent advocacy group for children with juvenile arthritis and other rheumatic diseases. They were the top fundraising team for the 9th year in a row.

The Evolution of Pediatric Rheumatology in Canada

By Ronald M. Laxer, MDCM, FRCPC
(with thanks to Dr. Ciaran Duffy, Dr. Alan Rosenberg and Michele Gibbon)

Evolution: a process of continuous change from a lower, simpler, or worse to a higher, more complex, or better state (Merriam Webster Dictionary, www.merriam-webster.com/dictionary/evolution)



The Canadian pediatric rheumatology community is a small but mighty one with national and international influence that certainly "punches way above its weight." The last decade has been a time of significant growth with the expansion of many academic programs and a strong community presence in several provinces, notably British Columbia and Ontario. Of the 15 medical schools, out of 17 in total in Canada, 12 have at least two pediatric rheumatologists on faculty, and while as pointed out by Dr. Janet Ellsworth this is still insufficient, it is a great improvement from a decade ago when only four centres (Vancouver, Toronto, Montreal and Halifax) had two or more faculty members. This expansion has not only enhanced the visibility of the specialty but allowed more exposure to medical students and pediatric residents, such that many have chosen to pursue pediatric rheumatology as a subspecialty. In fact, since 2006, 31 have graduated from the three Royal College-approved training programs (i.e., the University of British Columbia, the University of Toronto and McGill University).

In 2005, a meeting was held in Vancouver for all Canadian pediatric rheumatologists. As a result of this two-day conference, the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI) was launched. Soon after, a group led by Drs. Ciaran Duffy, Kiem Oen, Lori Tucker and Rae Yeung secured funding to support the Research in Arthritis in Canadian Children Emphasizing Outcomes (ReACCh-Out) study, CAPRI's first project; see article by Dr. Lori Tucker on p.11. This multicentre, national longitudinal cohort study tracked 1,500 patients with newly diagnosed juvenile idiopathic arthritis (JIA) to determine what factors influenced outcomes. The group has been and continues to be remarkably productive, with six publications thus far in the highest-impact rheumatology journals. The data continue to be analyzed and are a rich and highly sought-after source of material for ongoing clinical studies. It also demonstrated the ability of our community to come together and the power of collaboration.

In addition to the ReACCh-Out cohort, other large, collaborative multicentre studies have been organized and have led to important observations and contributions to the literature. The Biologically Based Outcome Predictors (BBOP) in JIA, led by Dr. Alan Rosenberg in Saskatoon, includes 11 centres. This study investigates the interaction of genetic, lifestyle and environmental factors early in the course of JIA to help predict outcomes and ultimately improve management. There is a large research team with representation from a wide variety of areas, including rehabilitation, nursing, nutritional sciences, cell biology and toxicology, among others. Four manuscripts have been published and data analysis is ongoing. The Linking Exercise Activity and Pathophysiology (LEAP) study, led by Dr. Ciaran Duffy and Dr. Lori Tucker, is also a prospective longitudinal cohort study that focuses on physical activity in patients with JIA. Patients have been enrolled at 12 pediatric academic health science centres throughout Canada. This study differs from the ReACCh-Out Study in that there is far greater inclusion of investigators from outside of the field of pediatric rheumatology, with a number of kinesiologists as well as longitudinal study data analysts. The study commenced in 2011 and to date almost 700 patients have been enrolled. The dataset includes demographic data; detailed clinical information, including medication use as well as laboratory data; physician and patient/parent global assessments; functional and quality of life questionnaires; and a questionnaire on physical activity. A subset of LEAP patients also provides biosamples at certain study visits, accelerometry data, detailed bone structural analysis and muscle-function testing. This study will ultimately acquire highly specialized and quite detailed information on the association between JIA and physical activity and the effects of physical activity on JIA, with a particular emphasis on effects on bone and muscle, as well as effects on measured biomarkers. Additionally, linkage to longitudinal biosamples offers the chance to explore novel biomarkers in the context of disease change over time. A number of abstracts emanating from this study have been presented at scientific meetings and a number of early descriptive papers are in process. Most recently, CAPRI has undertaken the development of a national registry that will track all Canadian children with JIA.

After several years of intense discussion and debate, the "Section of Pediatric Rheumatology" was formed in 2006 as the first section of the CRA. This section evolved from its predecessor, the Canadian Pediatric Rheumatology Association (CPRA), formed in 1986, with the recognition that by joining forces, both the CRA and CPRA would be stronger entities. The section serves to strengthen the voice of pediatric rheumatology across Canada and areas of focus include advocacy, education and human-resource planning; see article by Dr. Janet Ellsworth on p.15. Over the last few years the group has advocated for the availability of liquid naproxen and triamcinolone hexacetonide, as both had become unavailable for our patients.

With our increased numbers and strong collaborative spirit, pediatric rheumatology in Canada will continue to evolve. There is a cadre of young, energetic, well-trained, talented Canadian pediatric rheumatologists who will no doubt continue to produce high-quality research and attract the very best trainees to our specialty. The potential is enormous, and the future looks very bright indeed.

Ronald M. Laxer, MD, FRCPC
Professor, Departments of Pediatrics and Medicine,
University of Toronto
Staff Rheumatologist,
The Hospital for Sick Children and St. Michael's Hospital
Toronto, Ontario

Exercise is Medicine: Keeping Kids with Arthritis Active *(continued from page 7)*

Exercise prescription in JIA will evolve with advances in research, and Canadian rheumatologists are leading the way. The Linking Exercise, Physical Activity and Pathophysiology in Childhood Arthritis (LEAP) study, a longitudinal observational cohort at 12 pediatric rheumatology centres across Canada (n = 709), aims to explore the relationships between JIA, physical activity, and bone and muscle development (*www.leapjia.com*).

As physicians, we can promote the power of exercise. I encourage you to take the PA challenge by following these three simple steps: 1) ask your patients/their family about PA at every consultation; 2) write an exercise prescription; 3) follow up to chart progress, solve problems and set goals. We can also lead by example and integrate PA and exercise into our daily lives.

Kristin Houghton, MD, MSc, FRCPC, Dip Sports Med
Clinical Associate Professor,
Division of Rheumatology, Department of Pediatrics,
University of British Columbia
Vancouver, British Columbia

The Transition from Pediatric-centred to Adult-oriented Care in Rheumatology

By Evelyn Rozenblyum, MD, FRCPC; and Lynn Spiegel, MD, FRCPC

Transition has been defined as "the purposeful, planned movement of adolescents and young adults with chronic physical and medical conditions from child-centred to adult-oriented healthcare systems," whereas transfer refers to "a single act of moving from one facility to another, typically with no preparation or planning ahead of time."[1-3] As rheumatologic diseases affect both the patients' physical and emotional development, it is important that we think about thoughtful ways to prepare them for transition to the adult healthcare system, rather than simply transferring them when they reach 18 years of age. This article focuses on the importance of transition, current efforts underway in Canada and future research initiatives in the field of transition in rheumatology.

Why Transition is Important

In Canadian centres, transfer to adult care typically occurs at age 18. However, the adolescent brain and personal identity develops well into the mid-twenties; therefore, youth may not be developmentally prepared to transition to adult care.[4] Furthermore, during this critical time, young adults are often dealing with many areas of personal transition (i.e., relationships, school and career), making their medical needs a lower priority. These needs may not be properly addressed in routine clinic visits due to time constraints or lack of practitioner experience. Also, patients are often unprepared to take charge of their own medical management since their caregivers have typically assumed responsibility for coordinating appointments and tracking medications. These issues can lead to significant dropout from the medical system, with consequent compromise of disease control.[5]

Transition planning should begin in the pediatric centre from an early age. Encouraging patient autonomy and education around their disease and medications are paramount to the early transition process in pediatrics.

Transition Efforts Across the Country

Rheumatology centres across Canada have tried to address transition of adolescent patients' needs in different ways. There are well-established Young Adult with Rheumatic Diseases (YARD) clinics, in Halifax, Montreal, Calgary, and Vancouver, which have been shown to be most successful in health outcomes and decreased rates of clinic dropouts.[6] In Vancouver, care is shared between the adult and pediatric providers, bimonthly in a separate clinic space, for patients between 18-24 years old who were followed in the Pediatric Rheumatology Program.

> *Transition planning should begin in the pediatric centre from an early age. Encouraging patient autonomy and education around their disease and medications are paramount to the early transition process in pediatrics.*

Other centres, such as Halifax and Calgary, use a different approach. Halifax has quarterly clinics whereby the patient meets their new adult rheumatology provider in their familiar pediatric clinic, usually for one appointment prior to transition. In Calgary, the pediatric rheumatologist goes to the adult centre to help acquaint the patient to their new surroundings. Smaller centres across the country identify adult rheumatologists who have an interest in looking after young adults and refer to them almost exclusively.

Specialized clinics, such as the Lupus Program in Toronto, collaborate with adolescent medicine to help engage youth (as young as 13 years old) before they leave SickKids. In the general rheumatology clinics, there is a multidisciplinary approach with nurses, PT/OT practitioners and rheumatologists providing transition teaching with support from adolescent medicine and social work.

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Pediatric Rheumatology Research in Canada The Canadian Alliance of Pediatric Rheumatology Investigators: CAPRI is Growing Up

Lori B. Tucker, MD, FRCPC, Chair, CAPRI

CAPRI members in Saskatoon.

Canadian pediatric rheumatology research has earned attention and respect nationally and internationally, largely due to pediatric rheumatology clinicians and investigators from all across Canada coming together to form a national research network: the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI). As a group, we had worked together for many years on issues related to training, education and advocacy. A need for a group to represent and facilitate collaborative research across all Canadian pediatric rheumatology centres was identified in 2006 at a seminal meeting held in Vancouver, BC. We recognized that research in childhood rheumatic disease could only be effectively conducted in a multicentre manner, and decided to start a network. The group decided to focus on childhood arthritis, and out of that meeting, a New Emerging Team grant was submitted to CIHR and was successful. This was the birth of the Research on Arthritis in Canadian Children Emphasizing Outcomes (ReACCh-Out) study and the CAPRI group.

The mission of CAPRI is "pursuit of new knowledge for the benefit of children and adolescents with rheumatic diseases," with objectives to: 1) facilitate research on childhood rheumatic diseases through collaborative multicentre studies involving pediatric rheumatology centres in Canada; 2) build an infrastructure for multicentre pediatric rheumatology research; 3) facilitate and foster pediatric rheumatology research in which single or a few centres participate; 4) facilitate research training for those interested in a career in pediatric rheumatology research and to foster research careers of new investigators; and 5) liaise with other research groups both nationally and internationally.

Since the inception of the ReACCh-Out study, CAPRI has grown in research scope and membership. Our network includes as members all pediatric rheumatologists from every pediatric rheumatology centre in Canada, and has expanded to include research members who are not pediatric rheumatologists but engaged in pediatric rheumatology research, and trainees. Our initial project, ReACCh-Out, has been a terrific success with 1,500 children with newly diagnosed juvenile idiopathic arthritis (JIA) enrolled from all across Canada. We have creatively utilized the enormous resources from the ReACCh-Out cohort to study predictors of disease course, risk of flares, uveitis, pain, health-related quality of life, and novel genomic/biologic disease clustering. Our research in JIA has continued on from ReACCh-Out, to include studies on biologic basis of disease (Biologically Based Outcome Predictors in JIA [BBOP]; Principal Investigator [PI] Alan Rosenberg), and physical activity in children with JIA (Linking Exercise Activity and Pathophysiology in Canadian Children with JIA [LEAP]; PIs Lori Tucker and Ciaran Duffy). Several CAPRI members are international experts in childhood vasculitis research, and lead major research initiatives which involve CAPRI. These include A Registry of Childhood Vasculitis: E-entry (ArCHIVe) and the Pediatric Vasculitis Initiative (PedVas) (PI for both, David Cabral), and Brainworks (PI Susanne Benseler). Our next large project in develoment is launching a Canadian National JIA Registry, which will allow longitudinal data collection on children and youth with JIA across Canada,

CAPRI Canadian Alliance of Pediatric Rheumatology Investigators

Continued on page 12

The Transition from Pediatric-centred to Adult-oriented Care in Rheumatology

(continued from page 10)

Importance of Adult Rheumatology Involvement

Collaborating with our adult rheumatology colleagues is extremely important to understand and address the needs of our young adult patients. Effective communication, education around psychosocial issues and identifying how to best coordinate our efforts are paramount to achieving this goal.

Challenges we can anticipate include the funding difficulties for additional multidisciplinary staff, longer appointments, and clinic space availability.

Research Initiatives Through the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI)

CAPRI has created a working group to focus and unite our transition research efforts nationally with our adult colleagues. Currently, there are many collaborative national projects, such as evaluating a transition readiness questionnaire (the Readiness for Adult CarE in Rheumatology [RACER]) and creating a transition toolkit through focus groups with patients, families and adult/pediatric rheumatology practitioners. Our goal is to develop a core set of outcome measures to evaluate the acceptability and effectiveness of transition programs that will be linked with the national registries.

Clinically, we aim to create several models of care that different-sized centres can adopt, with the eventual goal of having a transition program in every major centre in Canada. It is our hope that these initiatives will enhance collaboration between pediatric and adult rheumatologists in order to serve our patients better and to achieve excellent medical and psychosocial outcomes.

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The complete version of this article is available online at *www.craj.ca*

Pediatric Rheumatology Research in Canada

(continued from page 11)

and will be able to be linked to new projects as they come along. The JIA Registry has received start-up funding from The Arthritis Society, and is in a pilot testing phase with full implementation planned for late fall 2016.

The enthusiasm and growth of CAPRI could be best seen at our most recent scientific meeting, which took place in Toronto on April 12-13, 2016. Forty-five members from across the country attended the meeting, and there were sessions reviewing current research, workgroup sessions for established projects as well as emerging programs such as transition research, outside speakers and work sessions on employing knowledge-translation strategies using our research results, and discussion of future directions and goals. Evaluations of the meeting from attendees were very positive, and the excitement and engagement of participants was fantastic.

As a small pediatric research network, CAPRI is doing well with steady growth, while remaining open to new opportunities and driven by our members' interests. CAPRI is a member of the Mother, Infant, Child, and Youth Research Network (MICYRN), a coordination body of Canadian pediatric research networks, and this connection is providing opportunities for infrastructure development. We have good collaboration with U.S. and international pediatric rheumatology researchers and research groups, and we have now become an important voice of Canadian pediatric rheumatology research in a variety of settings. Most importantly, we are a collaborative bunch who recognize the value of working together, and enjoy it. We are fortunate to have within our CAPRI membership tremendous experience, wisdom, creativity and enthusiasm for research. Our most precious asset is our collegiality and ability to work together for common goals, and with that, the future of CAPRI is very bright.

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Pediatric Rheumatology at Montreal's Sainte-Justine Hospital: The New Kids on the Block

By Marie-Paule Morin, MD, FRCPC, PhD(c); and Julie Barsalou, MD, FRCPC, MSc

The New Kids on the Block: Dr. Marie-Paule Morin on the left and Dr. Julie Barsalou on the right.

For the past three years, you could say that a fresh breeze has been blowing in the Pediatric Rheumatology Department of Montreal's Sainte-Justine Hospital. Our department now consists of two young (we still like to call ourselves that!) pediatric rheumatologists. We both completed specialized training at the Montreal Children's Hospital and additional training at the Hospital for Sick Children (SickKids) in Toronto.

More specifically, Dr. Julie Barsalou completed a three-year fellowship in pediatric lupus and neonatal lupus, as well as a Master's in Biomedical Sciences. The focus of her research is neonatal lupus, and she is actively working to establish a follow-up clinic for children exposed to maternal anti-Ro and anti-La antibodies. For her part, Dr. Marie-Paule Morin's research interests lie in the medical education field, and she is completing a PhD in Health Sciences Education. The theme of her research is healthcare partnership, more specifically, the active involvement of adolescent patients (especially those suffering from juvenile arthritis) in teaching programs.

One of the strengths of our department is that it is combined with the Pediatric Immunology Department, giving us an in-depth perspective on the pathophysiology of autoimmune diseases. The interaction with our colleagues during weekly meetings is extremely fruitful! These colleagues are in charge of Sainte-Justine Hospital's exploratory immunology laboratory, a national reference laboratory in this field. So we have an opportunity to evaluate in greater depth the condition of our patients suffering from various complex autoimmune diseases.

Regarding future projects, we are actively working with our colleagues to set up joint clinics: lupus nephritis clinics with the nephrology team and auto-inflammatory diseases and recurring fever clinics with the infectious diseases department. These clinics will soon be up and running, offering excellent opportunities for collaboration and learning.

A recurring theme for young physicians starting out in their career is how to balance work and family. We can boast that we have been very "productive" on this account. Our first weeks of shiftwork, setting up clinics and pursuing our respective studies were interspersed with baby bottles, changing diapers and short periods of sleep. This appears to be a required rite of passage… In the next few years, we hope to get a little more sleep so that we have the energy to meet the challenges and take full advantage of the opportunities that come our way!

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CRA Pediatric Rheumatology Education Update: Connecting Communities for Continuing Education and Patient Care

By Mercedes Chan, MBBS, MHPE, FRCPC

Learning has long been espoused as a social activity, and in Canadian pediatric rheumatology, the development of community to foster learning has made leaps and bounds in the last few years. Modern technology has greatly contributed to this process, and this is perhaps no better exemplified than by the Pediatric Rheumatology Prairie Rounds. Every Tuesday, the pediatric rheumatology teams in Calgary, Edmonton, Saskatoon and Winnipeg – the "Prairie Group" – convene in a videoconference to discuss cases and research. The premise for these rounds – which are an accredited Royal College learning activity – was to provide a platform for smaller centres to support each other in their clinical and academic activities. The rounds feature faculty and trainees from each of the prairie sites, as well as speakers from related specialties such as ophthalmologists, pathologists, radiologists, medical educators and visiting international and Canadian speakers. Twice a quarter, these rounds also provide a venue for a journal club, hosted by rotating centres. Most importantly, though, these rounds provide an opportunity for the prairie teams (including their allied health staff) to get to know one another and learn with and from one another. Presentations from the last year include sharing practices around joint injections and casting, uveitis updates, best practices in providing feedback and pathology rounds focused on myositis.

At a national level, plans are underway to increase dialogue with referring physicians, namely pediatricians and pediatrics trainees, through the formation of a special interest group in pediatric rheumatology within the Canadian Pediatric Society (CPS). The CPS is the major pediatrics association in Canada and plays a large role in advocating for the health of Canadian children with government. Having a voice within the CPS would provide further opportunities to advocate for children with rheumatic disease, endorse practice guidelines, and provide exposure to and education around pediatric rheumatology. At present, no formal rheumatology representation exists, something both the CPS and Canadian pediatric rheumatologists recognize to be an area of need as pediatricians form a substantial percentage of the pediatric rheumatology referral pool. Many pediatric rheumatology members of the Canadian Rheumatology Association have expressed interest in forming the core membership of a special interest group with hopes to have a formal group established in anticipation of the 2017 CPS annual meeting.

Finally, Canada continues to be recognized as providing centres of excellence for training in pediatric rheumatology for Canadian and international trainees alike. Recent years have seen trainees from India, Korea, Thailand, Saudi Arabia, Australia, Switzerland, Qatar, Germany, the Netherlands, Israel, Kuwait, Palestine, Singapore, Argentina and Kenya; see related article by Dr. Deb Levy on p.18. Many trainees from developing countries return to their home countries often to become one of only a handful of pediatric rheumatologists – or sometimes the first for a region – establishing divisions, fellowship programs and research registries. International trainees help to build a growing network of pediatric rheumatologists worldwide, thus expanding our community for collaboration and education, while ultimately improving access to and capacity for caring for pediatric rheumatology patients worldwide.

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The Pediatric Rheumatology Labour Force

By Janet Ellsworth, MD, FRCPC

Just as kids are not just little adults, pediatric rheumatologists are not just little adult-rheumatologists. The recent *Stand Up and Be Counted* survey, conducted by the Canadian Rheumatology Association (CRA), highlighted some important differences between the practices of adult and pediatric rheumatologists in Canada.

By my count, there are currently 54 pediatric rheumatologists practicing in Canada. In contrast to adult rheumatologists, the majority (60%) of whom practice in community settings, more than 80% of pediatric rheumatologists practice in an academic health centre, as members of a university department of pediatrics. As is typical of physicians in academic practice, pediatric rheumatologists have fewer clinics per week and see fewer total patients but, because of smaller division numbers, spend more time "on-call" than their adult-rheumatologist counterparts. Those who are in community practice must combine pediatric rheumatology with other clinical activities, mostly general pediatrics.

The care of pediatric rheumatology patients takes more time: taking a history from multiple perspectives (child, parents, other family members and friends), examining children at various stages of cooperativeness, and dealing with parental anxieties are just a few unique aspects of pediatric practice. We depend heavily on allied health providers, including nurses, physical therapists (PTs), occupational therapists (OTs) and social workers, and tend to work in teams rather than independently. We also spend time teaching learners at all levels, from medical students to rheumatology residents, and most are part of the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI) and participate in collaborative multicentre research, with a significant number engaging in independent research as well.

The pediatric committee of the CRA does a comprehensive survey regarding its labour force every three to five years, which highlights the variability across the country in terms of numbers of pediatric rheumatologists per population served and funding for allied health. This survey helps provide a benchmark and is useful for those advocating for resources in their centre.

What are the current labour force issues with respect to pediatric rheumatology?

1. Even though most pediatric rheumatologists must practice in an academic setting, funding for positions through the university and hospitals is competitive and can be difficult to secure.
2. There are only three pediatric rheumatology residency programs in Canada – at McGill University, University of Toronto and the University of British Columbia. The number of Canadian graduates from these programs annually is small, and in some years is not adequate to fill the faculty positions available, especially if new graduates from these large programs are not able and/or willing to relocate to a smaller centre.
3. Many programs struggle with small numbers of faculty – with only six out of 14 divisions of pediatric rheumatology having three or more full-time equivalent (FTE) physicians. As a result, it can be difficult to balance clinical responsibilities, including provision of clinical service 24/7, with academic requirements of research, teaching and administration. Although funding positions is a barrier, it is my opinion that sustainable pediatric rheumatology divisions require a critical mass of faculty in order to survive.
4. There are large areas of the country, particularly in the north, where patients are disadvantaged by having to travel large distances to receive pediatric rheumatology services. The need for outreach clinics in those areas is great, but is also hard to fund.
5. About 25% of pediatric rheumatologists plan to retire in the next five to 10 years.

These are some of the challenges we face as pediatric rheumatologists, but we are a collaborative and supportive community, actively working together to advocate for equitable care of pediatric rheumatology patients across the country.

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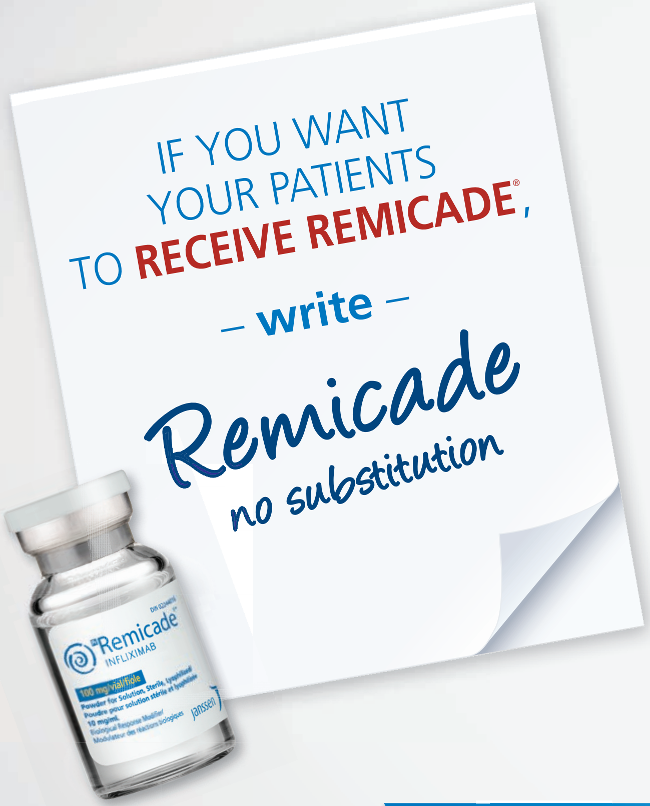

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References: 1. Data on file, Janssen Inc.
2. REMICADE® Product Monograph, Janssen Inc., April 26, 2016.

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Best Training in the World…Only in Canada?

By Deborah Levy, MD, MS, FRCPC, Chair, Pediatric Committee of the CRA

While pediatric rheumatology remains a nascent specialty in many countries, Canada is one of the most popular places for training, owing to our internationally recognized excellence. We have welcomed more than 60 trainees from over 20 countries into the three training programs at McGill University, University of Toronto (UofT) and University of British Columbia (UBC) through the years; see related article by Dr. Mercedes Chan on p.14. Although many of these trainees arrive with expertise and years of experience working as pediatric rheumatologists, they always leave Canada with expanded knowledge and experience, memorable travel experiences and many new and lifelong friends. For this issue of the CRAJ, I solicited comments from trainees who returned to their home countries to show the impact that our community has had around the world. I received many enthusiastic replies, and most have been abbreviated since the request for 50 words frequently produced a 300- or even 500-word email!

From Asia, Dr. Gun Phongsamart writes "I completed my pediatric rheumatology training at B.C. Children's Hospital and returned to work in my home country at Queen Sirikit National Institute of Child Health in Bangkok, Thailand. I was one of the pioneers in pediatric rheumatology in my country as well as a pioneer member of the pediatric rheumatology workforce in Southeast Asia, where up to 670,000 children suffer from rheumatologic diseases. It would be nice if we could create international collaborations to establish international standard pediatric rheumatology training to serve these children. The healthcare system in Thailand is quite complicated, which results in differences in access to necessary drugs. Therefore, I founded a juvenile arthritis and autoimmune diseases fund at the Children Hospital Foundation (*www.thaichf.org*) and we run charity concerts, plays, auctions, and other campaigns each year. I learned about patient advocacy from Dr. Ross Petty, and I recently started a patient self-advocacy group. I wish I could reproduce the excellent transition program that Dr. Tucker and Dr. Cabral run, but our healthcare system is not amenable to this. I enjoyed my training in Canada, and it was definitely one of the most important phases of my life."

In India, Dr. Rachana Hasija writes with a different perspective from Mumbai: "Pediatric rheumatology is still very much in its beginnings here, but challenges are welcome because the scope to grow begins with them. My training at SickKids will remain with me for my entire lifetime. Every patient I encountered, every presentation, every colleague, all my respected teachers...I have carried you all back with me to Mumbai. Every patient is my teacher here. Hoping to continue a synergistic relationship with SickKids."

Our Canadian ties with Australia extend beyond our mutual love of good food, wine and the outdoors. Dr. Roger Allen writes from Melbourne: "Australia currently has 17 pediatric rheumatologists — five locally-trained, one American-trained, four British-trained and the other seven all Canadian-trained. I led the charge back in 1982 when I went to Vancouver with the intention of doing 12 months of "something a bit different" before heading towards being a rural general pediatrician. I fell under the spell of the amazing Ross Petty and finished up staying on to train in rheumatology, and 35 years later, I am still at it. Despite our obvious geographic differences, there is something very special between our two countries. My family look on Vancouver as their second home even though we only get there every couple of years usually en route to the snow. Some years ago, my then 12-year-old twins directed a taxi driver as to the best way to miss the traffic to get from the airport to David Cabral/Lori Tucker's home —I guess that says it all!

From Western Australia, Dr. Senq Lee writes: "I am a consultant pediatric rheumatologist at Princess Margaret Hospital in Perth. As with most Australians, part of my advanced training/fellowship involved training in Toronto (2010-12) in Rheumatology at SickKids. I hold my time in Canada as the most enjoyable in my life. The supervision and training was of the highest-degree worldwide. I am primarily a clinical physician. The caring staff at SickKids provided a framework for fantastic clinical care, which I've incorporated into my daily practice, for which I am forever grateful."

And Dr. Jonathan Akikusa has a different perspective of Canada. "I am currently a pediatric rheumatologist and consultant pediatrician at the Royal Children's Hospital in Melbourne, Australia. My time at SickKids was valuable not only for the incredible learning opportunities it provided but also for the opportunity to meet people who have become lifelong mentors and friends. My ties with Canada remain very strong, not only professionally but — having married a Canadian— personally as well!"

"The caring staff at SickKids provided a framework for fantastic clinical care, which I've incorporated into my daily practice, for which I am forever grateful."

From Israel, Dr. Joseph Press writes "I had the distinct privilege of undertaking advanced studies in pediatric rheumatology at the Hospital for Sick Children in 1993-94. The two-year fellowship was indeed life-changing as upon my return to Israel, I was appointed head of Pediatric Emergency at Soroka Hospital in Beer Sheba and later headed the Pediatrics Division. In January 2008, I was appointed CEO of Schneider Children's Medical Centre of Israel, the only tertiary care hospital of its kind in the country. Many of my colleagues are alumni of SickKids, rightfully acknowledged as one of the key leaders in global Pediatric Medicine. It is for this reason that we actively encourage advanced training at SickKids where possible. Over and above my professional positions, I have continued throughout the years to serve in the Rheumatology Clinic at Soroka Hospital in Beer Sheba, alongside the publication of many research papers which concern rheumatology alone. I will forever be indebted to SickKids for having granted me this unique opportunity."

From Saudi Arabia, Dr. Abdullatif Alenazi writes, "I am a pediatric rheumatologist in Riyadh at King Fahad Medical City, a tertiary care centre providing services and receiving consultations from all over the country. It was a great opportunity for me to do a pediatric rheumatology fellowship in Vancouver, where the first Canadian pediatric rheumatology training was established and I was able to work with the father of Canadian pediatric rheumatology, Dr. Ross Petty. All I learned I have utilized upon returning home to help kids with rheumatic diseases. I have excellent relations with my colleagues and teachers in Canada and I can seek opinions for my most challenging cases."

In the United States (although originally from Germany), Dr. Hermine Brunner is currently the endowed chair and director of the Division of Rheumatology at Cincinnati Children's Hospital Medical Centre. She is also the scientific director of the Pediatric Rheumatology Collaborative Study Group. She writes: "The Masters in Clinical Epidemiology Training at UofT was critical for my career in clinical trial designs and outcome measure development. I also cherished the great clinical training with a constant emphasis on how to become better in treating pediatric rheumatic diseases – to mind come specialty clinics, fellow rounds and standard treatment protocols before anybody else was using them. I continue to have ties with Canadian sites for research and to exchange ideas."

From South America, Dr. Ricardo Russo writes: "I am currently the Head of Pediatric Immunology and Rheumatology at the largest pediatric centre in Argentina, the Garrahan Hospital in Buenos Aires. My training in Canada not only provided me with a wide background but also set the standards by which I have been practicing since I finished my fellowship and started my own program, 23 years ago. The fashion in which I deliver inpatient care, teaching, and research is the very one I was taught during my training period. I keep ties with close friends currently working in Toronto and other cities across Canada."

And from Europe, Dr. Boris Hugle writes: "I was a fellow in Toronto from 2008 to 2010. I had already completed pediatric and rheumatology training in Germany, but felt that it had not been sufficiently rigorous. Training at SickKids gave me a whole new perspective on pediatric rheumatology."

In the Netherlands, Dr. Sylvia Kamphuis, from the Sophia Children's Hospital at Erasmus University MC in Rotterdam writes: "I came as an experienced pediatric rheumatologist to specifically train in lupus with Earl Silverman and his great team. Just focusing on lupus for two years has given me unique knowledge and experience and a broad network of 'lupologists' internationally. These two years were fundamental for where I am now: (i) part of the childhood sys-

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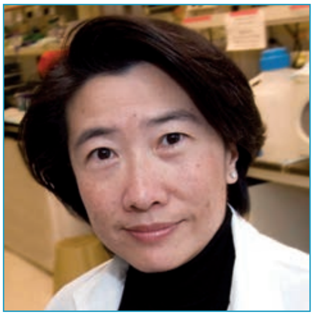
The CAN in UCAN

By Rae S. M. Yeung, MD, PhD, FRCPC



The Understanding Childhood Arthritis Network (UCAN) is a federation of research networks in childhood arthritis and rheumatic diseases, whose unique focus is translational research. Advances in molecular medicine combined with the drive towards precision care provide a tremendous opportunity to accelerate translation of biological understanding to the bedside. UCAN was built on the very Canadian principles of collaboration and compromise, recognizing that uniform approaches are required for robust collaborative research into pathobiology, especially for diseases where patient numbers at single institutions are small. Standardization is also critical to increase reproducibility between centres, which is a requisite step towards clinical implementation based on translational science. This complex task relies on shared resources, input from individuals with different expertise and international collaboration.

With funding from the Canadian Institute of Health Research (CIHR), the Canadian Arthritis Network (CAN), and the Ontario Ministry of Research and Innovation, I started UCAN together with a handful of translational researchers from six countries (Canada, the Netherlands, U.K., U.S.A., Germany, and Italy) in 2009. It has now grown beyond our expectations to enjoy an unprecedented level of international collaboration and is the only network to unite all of the major international organizations involved in childhood arthritis research, together representing over 50 countries and 300 sites. UCAN is leading development and implementation of standardized biologic sample collection and bioassay performance, together with providing core resources and facility development in partnership with established expertise in clinical research and trial design available from national and international networks. Together, we are building standardized international research platforms to support rapid translation of basic science findings to improve clinical care. UCAN will provide the opportunity for affected children all over the world to participate in high quality translational research. Our work has culminated in the 2016 London Declaration by leaders of all major research networks in pediatric rheumatology "to improve care and ultimately cure childhood rheumatic disorders through worldwide collaboration." So very Canadian – eh?

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Best Training in the World…Only in Canada? *(continued from page 19)*

temic lupus erythematosus (cSLE) team in a European project for developing standards of care for children with autoimmune diseases; (ii) having a PhD student studying long-term outcomes of cSLE; and (iii) starting a national cSLE registry in the Netherlands.

Back here in Canada, in addition to the wonderful colleagues and friends that we have all made, we have also expanded our knowledge of food and other customs distinct to different cultures, while realizing opportunities for combining work with foreign travel to maintain our ties.

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☐ The complete version of this article is available online at *www.craj.ca*

CRA Acetaminophen Survey Results

Discovered more than a century ago, acetaminophen has become one of the most widely used over-the-counter (OTC) compounds for pain and fever relief. Due to its safety and effectiveness, not surprisingly, the World Health Organization (WHO) considers it to be one of its essential medicines.[1]

Reports of overdoses and adverse effects, particularly on the liver, however, have brought forth questions as to whether Canadian regulations surrounding acetaminophen should be altered.[2] Some studies indicate that acetaminophen may not be as safe as previously thought.[3] We asked CRA members for their opinions and perspectives on acetaminophen and whether they see the need for changes to its accessibility.

Currently in Canada, acetaminophen is available OTC in unit doses ranging from 80 mg to 650 mg. When asked whether acetaminophen 500 mg should become a prescription medication, most survey respondents, almost 87%, agreed that it should not (Table 1). Some of you explained your opposition to restricting access, citing practical concerns over placing undue strain on the healthcare system. One CRA member explained, “If acetaminophen 500 mg becomes a prescription drug, there will be too much extra work for GPs to handle the needed appointments for prescription requests and renewals. Let the pharmacists regulate this, they are well-trained.” Several other comments echoed similar sentiments. As well, there were concerns that making acetaminophen harder to obtain would lead patients to substitute OTC nonsteroidal anti-inflammatory drugs (NSAIDs), leading to more organ-specific toxicities. “Do not restrict acetaminophen,” wrote one CRA member, “as it will force patients to take more over-the-counter NSAIDS and this will have far more negative effects with an increase of GI hemorrhage events, renal failure and most probably coronary events too!”

When asked about reducing the maximum unit dose OTC to 325 mg, the vast majority of CRA members (83%) also agreed that this should not be done (Table 2).

Three quarters of respondents also opposed placing acetaminophen behind the counter in pharmacies (Table 3). One survey respondent wrote, “As long as companies marketing acetaminophen ensure clear labelling, I don’t see the need to restrict access to this antipyretic and analgesic medication. Perhaps, reducing the number of pills per container or packaging as blister packs would decrease the risks of unintentional overdoses.”

Table 1. **Do you agree that acetaminophen 500 mg should become a prescription medication?**

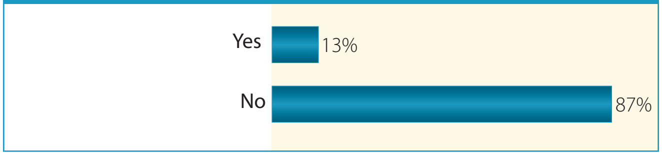


Table 2. **Do you agree that the maximum unit dose of acetaminophen should be limited to 325 mg from 500 mg OTC?**

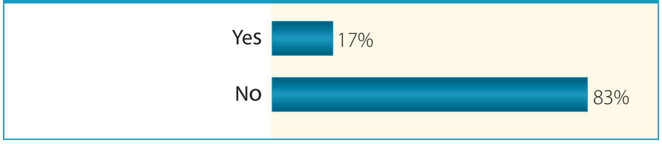


Table 3. **Do you agree that acetaminophen should be stored behind the counter in pharmacies?**

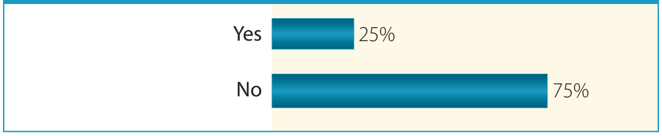
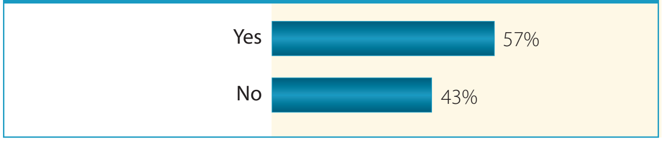


Table 4. **Do you agree that acetaminophen should be eliminated from all prescription opioid-containing medications?**



Of all the survey questions, the most polarizing was whether acetaminophen should be included in opioid-containing medications. More than half of respondents (57%) supported the elimination of acetaminophen from all prescription opioid-containing medications (Table 4).

Overall, while most CRA members agreed with maintaining the current standards for OTC acetaminophen, there seemed to be some concern with regard to the safety of acetaminophen in prescription opioid-containing medications.

This Joint Count article was developed and supported by the CRA Therapeutics Committee to help guide a response to the Health Canada panel.

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2. Health Canada. Summer Safety Review – Acetaminophen – Liver Injury. http://www.hc-sc.gc.ca/dhp-mps/medeff/reviews-examens/acetamino-eng.php. Published July 9, 2015. Accessed July 28, 2016.
3. Brune K, Renner B, Tiegs G. Acetaminophen/paracetamol: A history of errors, failures, and false decisions. Eur J Pain. 2015 Aug;19 (7):953-65.

The Costs of Care

By Victoria YY Xu, BHSc, MD; and Dr. Shirley Chow, MD, FRCPC, MSc (QIPS)

In 2013, 350 HLA-B27 tests were ordered in Alberta.[1] In Ontario, approximately 21,000 were done.[2] The population of Ontario is three times that of Alberta; with relatively similar incidence of inflammatory back disease, one cannot account for the difference in number of tests that are ordered. The difference is that, in Alberta, only rheumatologists can order the test.

More and more, there has been increasing acknowledgement of rising costs and inefficiencies within our healthcare system. In response to this, the CRA joined the **Choosing Wisely Canada©** campaign, with the goal to identify and promote care that is evidence-based, not duplicative, free of harm, and truly necessary.[3] The campaign helps physicians and patients engage in conversations about when a test, treatment, or procedure may be wasteful, harmful, and/or unnecessary.

Physicians have a key role to play in providing high-value care, meaning the highest quality care at the lowest costs. Most physicians are unfamiliar with costs of care and information about costs can be difficult to find. In educating the future generation of physicians, the CanMEDS 2015 learning milestones emphasizes the importance of engaging in the stewardship of healthcare resources. However, cost-conscious care is not featured within most medical curricula.

At the 2016 CRA Annual Scientific Meeting (ASM) in Lake Louise, all attendees were invited to estimate the costs of common lab and imaging tests ordered in rheumatology. These costs across Canada, along with participants' estimates, are shown in Table 1 and Table 2. Given the considerable discrepancies among estimated and actual costs, this topic is certainly an area of education for trainees and health care practitioners. Greater knowledge and transparency of costs are important for healthcare practitioners and trainees alike to gain competence in resource stewardship and provide high-value care to patients.

Beyond financial costs, misuse or overuse of healthcare resources incurs other harms, such as direct costs, opportunity costs, and downstream costs. Direct costs to patients include time, anxiety, out-of-pocket expenses, and clinical harm (*e.g.*, radiation, drug side effects, and infections). Direct costs to the healthcare system include time, resources, and overburdened emergency departments. Opportunity costs include time the patient

Table 1

Costs in dollars of common laboratory tests ordered in rheumatology*

	BC	AB	SK	MB	ON	QC	NB	NS	Participant estimates (n = 50), median (range)
CBC	21	17.94	5.65	5.65	8.67	2.1	2.6	2.77	15 (0.5-300)
ESR	60	3.82	3.25	3.25	1.55	1.5	0.6	3.97	15 (1-700)
CRP	26	9.94	8.75	8.75	3.1	2.1	1.36	3.56	20 (1.5-300)

*Costs listed are the costs billed to the provincial health organizations.

Table 2

Costs in dollars of common imaging tests ordered in rheumatology*

	AB	SK	MB	ON	NS	NFLD	Participant estimates (n = 50), median (range)
X-ray hands and feet	63.58	48.5	39.4	45.8	73.9	21.99	85 (10-500)
MRI spine	67.74	--	65.55	59.5	159.26	116.15	500 (44-500)
Bone density test	139.26	--	--	103.2	69.62	75.22	187.5 (45-200)
Whole-body bone scan	409.83	--	--	163.35	320.75	--	250 (49-2,500)

*Costs listed are the costs billed to the provincial health organizations.

must spend away from work and other responsibilities, time and resources healthcare staff must direct away from other patients in greater need, and system delays due to unnecessary or overused resources. On a larger scale, wasteful healthcare spending affects other sectors within the provincial budget, such as education. Finally, downstream costs for patients who receive unnecessary testing include follow-up appointments, further procedures, long-term side effects, nosocomial infections, and antimicrobial resistance.

Ultimately, the campaign hopes to encourage practitioners that in medicine, more care is not always better.

The CRA would like to thank Dr. Jason Kur, Dr. Robert Ferrari, Dr. Jodie Reis, Dr. Cory Baillie, Dr. Michel Zummer, Dr. Sylvie Ouellette, Dr. Trudy Taylor, and Dr. Majed Khraishi for helping find the costs of tests. The Choosing Wisely Committee would also like to congratulate Dr. Linda Brown, the CRA AGM attendee who guessed the closest to the actual costs, winning attendance to the next CRA ASM. Unfortunately, some provinces' costs were not available. If you would like to contribute the costs of tests in your province, please contact *claire@rheum.ca*.

References
1. Alberta figures based on unpublished provincial laboratory data, 2013.
2. Ontario figures based on Ontario Health Insurance Plan (OHIP) codes for HLA-B27 . Data provided by the Institute for Clinical Evaluative Sciences (ICES), March 9 2015.
3. CRA Choosing Wisely Recommendations. Available at: *www.rheum.ca/en/the_cra/choosing_wisely_canada1.*

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Assistant Professor,
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HAVE YOU BEEN CHOOSING WISELY?

Have you been choosing wisely? Have you developed an innovative initiative to implement any of the CRA Choosing Wisely recommendations?

Share them with us! Send them to *claire@rheum.ca* and you may be featured in a future *CRAJ* article.

UNIVERSITÉ DE
SHERBROOKE

Choosing Wisely at the Université de Sherbrooke

In 2014, one year after the launch of the national **Choosing Wisely Canada** campaign, physicians—including rheumatologists—in Sherbrooke organized some local conferences about the issues, and the urgency to act, regarding the subject of appropriate use of scarce medical resources. After initial enthusiasm, the desire to pursue the **Choosing Wisely** philosophy progressively wore off, and no concrete changes in practice were observed. Inspired by successful experiences at other Canadian medical institutions, the Université de Sherbrooke aimed to adopt a better strategy in 2016 to actually change medical practice.

We recently received an internal grant to develop IT resources to continually promote wise choices. In our hospital, diagnostic tests are prescribed by a computerized physician order entry (CPOE) system. Our approach will be to add a function to the software to automatically generate a pop-up window presenting the **Choosing Wisely Canada** recommendation as clinical decision support for some targeted radiologic tests. For instance, in a CPOE prescription for a magnetic resonance imaging (MRI) scan for lower back pain, a pop-up will briefly remind users of its recognized scientific indications. A second function will generate a dashboard allowing physicians and residents to consult their own statistics about tests prescribed within the last year, comparing themselves anonymously to their peers. This exercise will allow physicians to easily obtain Type 3 credits from the CRCSP.

Even if we are now more optimistic than in 2014, we remain conscious that changing practice is probably one of the biggest institutional challenges. We hypothesize that a few inexpensive electronic resources promoting continuous educational feedback could be a pragmatic strategy to promote changes in practice patterns.

Ariel Masetto, MD
On behalf of the
Rheumatology Department,
Université de Sherbrooke

CRUS Update

By the CRUS Executive Delegation to Norway

Greetings, CRA members! We have had a busy start to 2016 with the launch of our new e-learning website, re-vamping of our Canadian Rheumatology Ultrasound Society (CRUS) executive, advances in our application towards an *Area of Focused Competency (AFC) Diploma* in point of care ultrasound (POCUS) for rheumatology, and our first-ever Canadian delegation to the International Vasculitis Ultrasound meeting in Kristiansand, Norway.

New ECRUS Website

We are happy to announce more value for your CRUS membership. The members-only website can be accessed through *www.cruslearn.crus-surc.ca*. There you will find instructive cases of various pathologies, along with interesting articles and videos from our past courses. Questions regarding your login details, the website content, and cases can be directed to *info@ecrus.ca*.

New CRUS Executive

We are very excited to announce our newest CRUS president, Dr. Michael Stein, from Montreal, who brings with him a uniquely Quebec experience! Dr. Stein has been involved in ultrasound research as part of the Prospective Observational Study to Evaluate the Use of MSK US to Improve Rheumatoid Arthritis Management: Canadian Experience (ECHO) study. Dr. Johannes Roth has stepped down from his role of president and we thank him for his contributions to CRUS. We have also added two new education positions; Dr. Susan Barr from Calgary will oversee training, and Dr. Maria Bagovich from Toronto will handle online education. Dr. Chris Penney, Dr. Abe Chaiton, Dr. Diane Wilson, and Dr. Lihi Eder remain in their roles of Vice-President, Treasurer, Secretary, and Research Director, respectively.

POCUS Update

We would like to commend Dr. Chaiton for his (among others) relentless pursuit of recognition by the Royal College for an *AFC Diploma* in POCUS for rheumatology. We are pleased to announce that, as of March 16, 2016, the Royal College Speciality Committee in Diagnostic Radiology "supports in principle the application for AFC POCUS rheumatology" with specific recommendations to re-convene in fall 2016. Stay tuned.

Canadian Delegation International Vasculitis Ultrasound Meeting: Kristiansand, Norway

This year marks the first year that Canada had a significant presence at the 4th International Workshop on Ultrasound in Large Vessel Vasculitis and Polymyalgia Rheumatica, which took place April 8-10, 2016, in Kristiansand, Norway. Canada sent six of the 19 participants; the ratio of tutor to student was 1:5. The course focused mainly on vascular ultrasound skills to image temporal arteries in addition to large vessels (axillary, carotid) looking for signs specific to large-vessel vasculitis. Though not the focus, the course touched briefly on imaging in polymyalgia

Canadian CRUS Delegation to Norway from left to right: Dr. Barr, Dr. Wilson, Dr. Bagovich, Dr. Chaiton, Dr. Maggie Larché, and Dr. Aurore Fifi-Mah.

rheumatica (PMR). New information brought to light was the utility of scanning large vessels, such as the axillary artery, to help with both diagnosis and relapse of large-vessel vasculitis. It was our impression that there has been—and will be—a move towards greyscale diagnosis of vasculitis using intimal wall thickening as well as the halo sign, with the advent of more powerful machines with higher-frequency probes (*e.g.*, 22MHz rather than 18MHz). We were able to see recent and chronic patients with giant cell arthritis (GCA) and saw the halo sign first-hand—it was very exciting. Lastly, the Scandic Hotel Bystranda was outstanding; the blue water provided a beautiful backdrop to an already phenomenal course. Dr. Andreas Diamantopoulos visited Canada for a refresher course the weekend of May 13, 2016. A very special thanks to Dr. Penney for his efforts in bringing this dream to fruition.

CRUS Executive Delegation to Norway:
Maria Bagovich, MD, FRCPC, RhMSUS;
Susan G. Barr, MD, MSc, FRCPC;
Abraham Chaiton, MD, MSc, FRCPC, RhMSUS;
Aurore Fifi-Mah, MD, FRCPC;
Maggie Larché, MBChB, MRCP(UK), PhD; and
Diane Wilson, MD, FRCPC

CRUS|SURC

ULTRASOUND GUIDED INTERVENTIONS FOR RHEUMATOLOGISTS WITH CADAVER HANDS-ON TRAINING

DATES: Post CRA Course
Feb. 11th & 12th, 2017.

LOCATION: University of Ottawa Skills and Simulation Centre
www.uossc.ca

DESCRIPTION:
Designed to improve competence in MSK ultrasound guided interventions and diagnostic and treatment accuracy. With a focus on relevant sonoanatomy, participants will experience extensive hands-on supervised scanning of upper and lower limb structures using unembalmed human cadaver specimens.
Low student to tutor ratio ensures individual attention for advanced skills acquisition
Prerequisites: Basic MSK ultrasound training is recommended.

FACULTY:
Outstanding, experienced MSK ultrasound practitioners and educators.

Johan Michaud
MD FRCPC
– Montreal
Assistant Professor of Physiatry and Musculoskelettal Ultrasound Consultant at Hospital Notre-Dame, CHUM, Univ. of Montreal and Institut de Physiatry du Quebec, Montreal, QC.

Alessandra Bruns
MD MSc FRCPC RhMSUS
– Sherbrooke
Associate Professor of Rheumatolology and Director of the Musculoskelettal Ultrasound Clinic at Hospital Hötel Dieu, CHUS, Univ. of Sherbrooke, QC. Musculoskeletal Ultrasound Consultant at the Children's Hospital, Univ. of McGill, Montreal, QC.

Gurjit S Kealey
MBBS, MRCP RhMSUS
– Jacksonville
Professor of Medicine, Chief, Division of Rheumatology, Director of Musculoskeletal Ultrasound, Univ. of Florida College of Medicine, Jacksonville, FL.

COURSE DIRECTORS:

Abraham Chaiton
MD MSc FRCPC RhMSUS
– Toronto
Assistant Professor of Medicine Univ. of Toronto
Rheumatologist - Sunnybrook & Humber River Hospitals

Johannes Roth
MD PhD FRCPC RhMSUS
– Ottawa
Professor of Paediatrics Univ. of Ottawa
Chief, Division of Paediatric Rheumatology
Children's Hospital of Eastern Ontario

REGISTRATION FEE: $1,400 CDN - Early Registration Fee
$1,200 - CRUS Member $1,000 - Student
Early registration recommended: www.crus-surc.ca/en/courses/

EDUCATION CREDITS:
Eligible for Royal College MOC section 1 credits of 3 hrs and section 3 credits of 11 hrs.
All credits are eligible for conversion to AMA PRA category 1 credits.

SJSC: Professional Education Day

By Arthur Bookman, MD, FRCPC

On April 29th a Professional Education Day was held on Sjogren's syndrome at the Hilton Meadowvale Hotel and Conference Centre in Mississauga.

Dr. Rookaya Mather, an ophthalmologist from Western University, discussed the diagnosis and management of xerophthalmia. Dr. Mather made the point that treatment is aimed at maintaining the integrity of the tear film and ocular surface through tear replacement, enhancing tear retention and maximizing meibomian gland function. She addressed four levels of tear dysfunction, from mild to severe, and gave strategies for each. She noted the advent of Lifitegrast, a potential new agent that would prevent T-cell activation on the ocular surface. She also addressed the improvement in artificial tears with the advent of hyaluronic-acid-based preparations.

Dr. Robert Fox was a guest speaker from the Scripps Memorial Hospital in La Jolla. He took an overview approach to future directions for investigations and management of Sjogren's. He addressed the fact that the spectrum of the disease may not be fully appreciated, as many older patients with systemic lupus erythematosus may actually have Sjogren's syndrome. He discussed the fact that many clinical trials are underway, but they do not address the key features of distress in Sjogren's, namely dryness, pain and fatigue. He felt that interferon activation might underlie the fatigue. He also made the point that whereas SLE is largely an "immune complex" disorder, Sjogren's is mainly a "lymphocyte aggressive" disorder. He demonstrated how bits of cellular debris could mimic viral RNA and link to Ro antigen to induce anti-Ro antibodies.

Dr. Leslie Laing, on staff at the University of Toronto School of Medicine, discussed the major issues with dental deterioration seen in Sjogren's syndrome. She addressed the fact that implant survival was as high as 97% in patients with Sjogren's, but about 14% had unsatisfactory results. Bone and gingival resorption about the transplant posts were the main issues.

SJSC Sjögren's Society of Canada

Working Together to Conquer this Serious Autoimmune Disease
Affecting up to 430,000 Canadians!

In my own presentation, I addressed the controversial outcomes of clinical trials to date, and the development of the EULAR Sjogren's Syndrome Disease Activity Index (ESSDAI) and the EULAR Sjogren's Syndrome Patient Reported Index (ESSPRI) to gauge the extra-glandular activity of the disease. New clinical trials underway were described, along with their clinical targets.

Dr. Julius Birnbaum is the only certified internist, neurologist and rheumatologist in the United States. He was a guest speaker from Johns Hopkins Hospital in Baltimore. He covered the neurological manifestations in Sjogren's syndrome, his special area of interest and research. Most interestingly, he described the pathology and clinical manifestations of small fiber neuropathy. The pathological illustrations were quite convincing, but more importantly, he described two subtypes: 1) Length dependent with peripheral pain and sensory loss; and 2) Non-length-dependent, which is a "ganglionopathy" involving the dorsal root ganglia. The diagnosis is best made with skin biopsy, and the prevalence is around 9.7%. Devic's disease as a cause of spinal cord demyelination in Sjogren's was also discussed.

Finally, Dr. Christina McCord, an oral pathologist at Western University, reviewed the mucosal pathology seen with Sjogren's syndrome, including the many forms of candidiasis. She discussed the reasons for salivary gland swelling and methods for management. She reviewed the difficulty with dentures, and the trauma they produce. Topical modalities for management were reviewed. Dr. McCord also addressed the indications and methodology for minor salivary gland biopsy.

The Professional Education Day had more than 90 registrants, and the feedback indicated that the information

Continued on page 27

Hamilton Hackathon

By Manisha Mulgund, MD, FRCPC

Hacking Health Hamilton Hackathon was a sponsored event held at McMaster Innovation Park during the last weekend of February 2016. The event aimed to link technology creators, business developers, established resources in hospitals and healthcare professionals together to create novel, human-centric solutions to problems plaguing healthcare in our society. It was indeed interactive and started with individuals presenting their ideas in one-minute presentations on Friday evening. Over the next two days, everyone was encouraged to join a project they found interesting and to build on it to do a three-minute presentation on Sunday, in the hopes of getting funding or support to move further with it. Over the weekend, we had access to mentors and the opportunity to meet others with innovative ideas.

My project idea was to improve patient engagement and education using an app. Another student partnered with me to bring the app idea to life for the presentation. The app was called “Rheumbuddy” and was meant for patients with rheumatoid arthritis (RA) who would have access to education about the causes, symptoms, management, and treatment options in RA. There would be videos for exercises, patient stories, and other educational videos to make it interactive. It was indeed rewarding to be able to conceive the idea and see it partially done. Of course, taking these ideas to completion is another ball game.

Some of the ideas that won funding and entrepreneurial support included replacing physician pagers in hospitals with an app to sign off documents and to be more reachable and efficient; patient-centred research to rate success of apps used for weight loss and smoking and alcohol cessation so that healthcare professionals can assist patients in choosing the right apps; and simplifying technology so that people in retirement or nursing homes can see videos and pictures of their loved ones on their televisions at the touch of a button. High school students from Hamilton won the People’s Choice Award with their concept of a medication reminder app for a patient, which is also connected to another user such as the patient’s family member, so that they can rest assured that the patient has actually taken his or her meds to improve adherence.

Overall, the Hacking Health Hamilton Hackathon was a fun, engaging weekend with many interesting ideas that will indeed help solve problems in healthcare. The only word of caution is that there needs to be clarity on the intellectual rights to property if these ideas are taken to the next level. I am sure that with increasing success of such meet-ups, the organizers will establish some ground rules on these issues.

Manisha Mulgund, MD, FRCPC
Community Rheumatologist
Hamilton, Ontario

SJSC Professional Education Day *(continued from page 26)*

provided was outstanding. The organizers (Toronto Western Hospital Division of Rheumatology and the Sjogren’s Society of Canada) were inundated with requests for a repeat performance, and discussions are underway to consider another CME event in western Canada.

Arthur A.M. Bookman, MD, FRCPC
Coordinator, Multidisciplinary Sjogren’s Clinic
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JOINT COMMUNIQUÉ

The Dilemma Rheum – More Sessions Coming Soon

By Janet Pope, MD, MPH, FRCPC

The CRA has recently launched The Dilemma Rheum, a series of educational teleconferences designed for recently certified rheumatologists and trainees. Each session features an expert on a particular topic, who discusses and answers questions on real-life cases brought forward by participants. These sessions were well-received this past spring when the program launched and will continue this fall with new featured sessions.

Here is some of the feedback we have received from past participants:

"The opportunity to include challenging cases with multiple people outside of my centre was outstanding!"

"This was a stellar experience! As a new community physician, I found it a useful way to discuss difficult cases with peers and mentors."

"The Dilemma Rheum series is a unique and boundary-pushing tool for extending the expertise of rheumatologists across Canada through interactive and engaging discussion with experts and colleagues. I wouldn't miss a session."

For more information or to register, please visit *www.rheum.ca/en/events/upcoming_events/dilemma_rheum_series.*

Upcoming sessions include:

Difficult SpA/Seronegative	**Dilemma Cases**	**Difficult CTD**
September 21, 2016	*October 5, 2016*	*November 23, 2016*

REGIONAL NEWS

NB

Photo credit: V Bakowsky.

All smiles: Dr. Peter Docherty on the left and Dr. Jamie Henderson on the right.

"Certain things, they should stay the way they are. You ought to be able to stick them in one of those big glass cases and just leave them alone."

– J.D. Salinger, The Catcher in the Rye

News from Dr. Sylvie Ouellette in New Brunswick

Neither nature nor rheumatology is immune to change. This year saw the majestic Hopewell Rocks irrevocably changed. Not to be outdone by mere rocks, Dr. Jamie Henderson has retired from practice in time to take over grandparenting duties, and Dr. Peter Docherty has started his semi-retirement to pursue a "healthier lifestyle". Though we will miss their expertise and wisdom, we wish them both a lengthy and healthy retirement! The silver lining is that Dr. Noémie Gionet-Landry will start at The Moncton Hospital in November 2016.

Tribute to Syd Jackson– A Real Arthritis Champion

By Denis Morrice, executive director of the Ontario Rheumatology Association;
and Carter Thorne, MD, FRCPC, FACP

1922 - 2016

Syd Jackson was a huge supporter of arthritis research and was involved with The Arthritis Society for 25 years as a board member and chair of numerous committees and ad hoc projects. He died recently at the age of 93. Syd's wife, Nancy, died a number of years ago from the complications of rheumatoid arthritis.

Syd was always concerned about the inadequate funding for arthritis research. He had an incredible skill at dissecting numbers, especially budgets, research allocations, and demographics – all coming from his experience in teaching actuarial science and being the youngest President of Manulife, which during his time grew from $2.3 billion to $16.5 billion in assets.

He was a great supporter of the Rheumatic Disease Unit concept and The Arthritis Society's support of clinical and research fellows. He often noted that there would be a shortage of rheumatologists due to the aging population, thus his support for the funding of clinical fellows. Though based in Toronto, his vision was national, and he ensured that these two important programs were accessible to all Canadian medical schools.

Syd had a good handle on research funding and served as a director of the Canadian Institute for Advanced Research (CIFAR). He also understood politics and the importance of stakeholder collaboration. He gave The Arthritis Society Board support for Arthritis 2000 – bringing 250 stakeholders together to map out initiatives for arthritis research and patient care. When the Networks of Centres of Excellence (NCE) opportunity presented itself, Syd made many calls to Members of Parliament and we proceeded to meet with various cabinet members, ensuring that patients and researchers were always included. It was a huge effort that included others, especially Dr. Tony Cruz and his research colleagues, along with Jim Davies and Ann Qualman, representing the Canadian Arthritis Patient Alliance (CAPA). The result: CAN (Canadian Arthritis Network) was the first disease-specific NCE in Canada, and resulted in 14 years of multi-million dollars of arthritis research funding.

Next came the Canadian Institute of Health Research (CIHR). Syd always found it disconcerting that there wasn't even an arthritis panel at the Medical Research Council (MRC), now known as the CIHR. When he heard that MRC was considering an organizational change, Syd immediately orchestrated a meeting with the President, Dr. Henry Friesen, and we spent time strategizing how we could improve the arthritis research agenda. Syd noted that we needed a broader research power base. In discussions with the late Dr. Cy Frank, we brought together researchers from rheumatology, orthopedics, dermatology and dentistry to create a collaborative and wider based research group. Then came a replay of meetings with cabinet ministers in Ottawa. The result: the CIHR Institute of Musculoskeletal Health and Arthritis (IMHA), meaning greater opportunities for arthritis researchers.

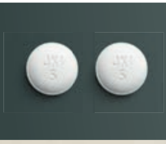
Syd is remembered by some as a leader, others as a facilitator, and by all as a friend and mentor with an infectious smile and twinkle in his eye that usually meant he had an idea or strategy that would further the "cause."

Things don't just happen – people make them happen…Syd made things happen.

Denis Morrice
Executive Director, Ontario Rheumatology Association
Former CEO, The Arthritis Society
Toronto, Ontario

Carter Thorne, MD, FRCPC, FACP
Medical Director, The Arthritis Program & Chief Division of Rheumatology,
Southlake Regional Health Centre
Newmarket, Ontario

WHEN METHOTREXATE ALONE IS NO LONGER ENOUGH, CONSIDER ^{PR}XELJANZ®.



Simple, twice-daily oral dosing

XELJANZ (tofacitinib) in combination with methotrexate (MTX) is indicated for reducing the signs and symptoms of rheumatoid arthritis (RA) in adult patients with moderately-to-severely active RA who have had an inadequate response to MTX. In cases of intolerance to MTX, physicians may consider the use of XELJANZ as monotherapy.

Use of XELJANZ in combination with biological disease modifying anti-rheumatic drugs (DMARDs) or potent immunosuppressants such as azathioprine and cyclosporine is not recommended.

Most serious warnings and precautions:

Risk of Serious Infections: Patients treated with XELJANZ are at increased risk for developing serious infections that may lead to hospitalization or death. Most patients who developed these infections were taking concomitant immunosuppressants such as methotrexate or corticosteroids. If a serious infection develops, interrupt XELJANZ until the infection is controlled. Reported infections include: active tuberculosis, invasive fungal infections, bacterial, viral, and other infections due to opportunistic pathogens.

Treatment with XELJANZ should not be initiated in patients with active infections including chronic or localized infection.

Patients should be closely monitored for the development of signs and symptoms of infection during and after treatment with XELJANZ, including the possible development of tuberculosis in patients who tested negative for latent tuberculosis infection prior to initiating therapy.

Malignancies: Lymphoma and other malignancies have been observed in patients treated with XELJANZ. Epstein Barr Virus-associated post-transplant lymphoproliferative disorder has been observed at an increased rate in renal transplant patients treated with XELJANZ and concomitant immunosuppressive medications.

Other relevant warnings and precautions:

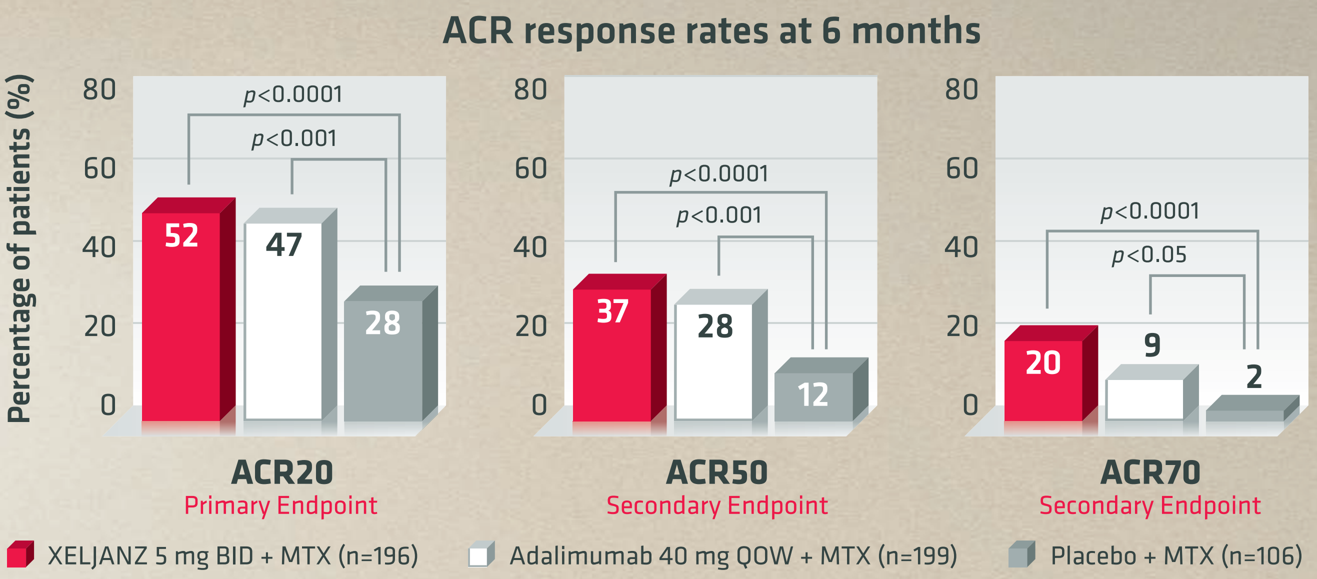
- Risk of gastrointestinal perforation. Use with caution in patients who may be at increased risk for gastrointestinal perforation.
- Risk of viral reactivation, including herpes zoster.
- Risk of malignancies, lymphoproliferative disorder, and nonmelanoma skin cancer.
- Risk of lymphopenia, neutropenia, anemia, and lipid elevations.
- XELJANZ should not be used in patients with severe hepatic impairment, or in patients with positive hepatitis B or C virus serology.
- Use with caution in patients with a risk or history of interstitial lung disease (ILD).
- XELJANZ can increase the risk of immunosuppression. Concurrent use with potent immunosuppressive drugs is not recommended.
- Concurrent use with live vaccines is not recommended.
- Use with caution in patients with impaired renal function (i.e., CrCl <40 mL/min).
- XELJANZ should not be used during pregnancy.
- Women should not breastfeed while being treated with XELJANZ.
- The safety and effectiveness of XELJANZ in pediatric patients have not been established.
- Caution should be used when treating the elderly because of an increased risk of serious infection.
- Use with caution in Asian patients because of an increased risk of events including: herpes zoster, opportunistic infections and ILD.
- Treatment with XELJANZ was associated with increases in creatine kinase.

CA0115TOF005E

Demonstrated powerful efficacy where response to methotrexate was inadequate

Significant symptom reduction was shown at 6 months in MTX-IR patients treated with XELJANZ + MTX vs. placebo + MTX.[1]*

This study was not designed to compare XELJANZ to adalimumab.



ACR response rates at 6 months

Significant improvement in physical functioning at 3 months was achieved in MTX-IR patients treated with XELJANZ + MTX vs. placebo + MTX.[1]*

Mean HAQ-DI decrease from baseline at 3 months: -0.56 XELJANZ 5 mg BID or -0.51 adalimumab 40 mg QOW vs. -0.25 placebo (*p*<0.0001).
This study was not designed to compare XELJANZ to adalimumab.

- XELJANZ causes a decrease in heart rate and a prolongation of the PR interval. Caution should be observed in patients with a low heart rate at baseline (<60 beats per minute), a history of syncope or arrhythmia, sick sinus syndrome, sinoatrial block, atrioventricular (AV) block, ischemic heart disease, or congestive heart failure.
- Treatment with XELJANZ was associated with increased incidence of liver enzyme elevations.

For more information:

Please consult the product monograph at http://www.pfizer.ca/en/our_products/products/monograph/342 for important information relating to adverse reactions, interactions, and dosing information which have not been discussed in this piece. The product monograph is also available by calling us at 1-800-463-6001.

EASE-OF-USE
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The XELJANZ bottle cap was awarded The Arthritis Society's Ease-of-Use Commendation.[2]†

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Reference: 1. Pfizer Canada Inc. XELJANZ Product Monograph. April 16, 2014. **2.** Arthritis Society. June 2014 Impact - Ease of Use. Available at http://www.arthritis.ca/page.aspx?pid~7650. Accessed July 22, 2014.

BID = Twice daily; QOW = Every other week; MTX-IR = Methotrexate Inadequate Responders

*Multicentre, randomized, double-blind, placebo-controlled study in patients ≥18 years with active RA according to ACR criteria. Patients received MTX and were randomized to receive XELJANZ 5 mg BID (n=196), adalimumab 40 mg QOW (n=199), or placebo (n=106). The primary endpoints were the proportion of patients who achieved an ACR20 response at month 6, mean change from baseline in HAQ-DI at month 3, and the proportion of patients who achieved DAS28-4 (ESR) <2.6 at month 6.

†The Arthritis Society's Ease-of-Use Commendation recognizes products, like the XELJANZ bottle cap, that have been independently tested for easy use and handling for people living with arthritis. The Arthritis Society does not determine the therapeutic value of products and the designation is not intended as a general product endorsement that are designed for ease of use in patients with arthritis.

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REMICADE® is indicated:

- In combination with methotrexate (MTX), for the reduction in signs and symptoms, inhibition of the progression of structural damage and improvement in physical function in adult patients with moderately to severely active rheumatoid arthritis (RA)
- Reduction of signs and symptoms and improvement in physical function in patients with active ankylosing spondylitis (AS) who have responded inadequately, or are intolerant, to conventional therapies
- Reduction of signs and symptoms, induction and maintenance of clinical remission and mucosal healing and reduction of corticosteroid use in adult patients with moderately to severely active Crohn's disease (CD) who have had an inadequate response to a corticosteroid and/or aminosalicylate; REMICADE® can be used alone or in combination with conventional therapy
- Reduction of signs and symptoms and induction and maintenance of clinical remission in pediatric patients with moderately to severely active CD who have had an inadequate response to conventional therapy (i.e., corticosteroid and/or aminosalicylate and/or an immunosuppressant)
- Treatment of fistulizing CD in adult patients who have not responded despite a full and adequate course of therapy with conventional treatment
- Reduction of signs and symptoms, induction and maintenance of clinical remission and mucosal healing and reduction or elimination of corticosteroid use in adult patients with moderately to severely active ulcerative colitis (UC) who have had an inadequate response to conventional therapy (i.e., aminosalicylate and/or corticosteroid and/or an immunosuppressant)
- Reduction of signs and symptoms, induction and maintenance of clinical remission and induction of mucosal healing in pediatric patients with moderately to severely active UC who have had an inadequate response to conventional therapy (i.e., aminosalicylate and/or corticosteroid and/or an immunosuppressant)
- Reduction of signs and symptoms, induction of major clinical response, inhibition of the progression of structural damage of active arthritis and improvement in physical function in patients with psoriatic arthritis (PsA)
- Treatment of adult patients with chronic moderate to severe plaque psoriasis (PsO) who are candidates for systemic therapy. For patients with chronic moderate PsO, REMICADE® should be used after phototherapy has been shown to be ineffective or inappropriate. When assessing the severity of psoriasis, the physician should consider the extent of involvement, location of lesions, response to previous treatments and impact of disease on the patient's quality of life.

Please consult the product monograph at http://www.janssen.com/canada/products#prod-420 for important information on conditions of clinical use, contraindications, warnings, precautions, adverse reactions, drug interactions and dosing information, which have not been discussed in this piece. The product monograph is also available by calling 1-800-567-3331.

References: 1. Data on file, Janssen Inc.
2. REMICADE® Product Monograph, Janssen Inc., April 26, 2016.

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