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The Journal of the Canadian Rheumatology Association

Focus on: The CRA Annual Scientific Meeting

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* Clinical significance has not been established.

Reference: 1. Taltz Product Monograph. Eli Lilly Canada Inc., January 8, 2019.

W. Sutton or W. Gretzky: Succeeding in the Present vs. Preparing for the Future

By Philip A. Baer, MDCM, FRCPC, FACR

The famous bank robber Willie Sutton was once asked why he robbed banks. The answer, known as Sutton's Law: "Because that is where the money is." This maxim is frequently invoked in medical diagnostics, keeping company with Occam's razor and a well-known quote about hoofbeats, horses and zebras.

On the other hand, Wayne Gretzky was famous for following his father Walter's advice: "Skate to where the puck is going, not where it has been." Predicting the puck's future path left him alone with good scoring chances time after time, making him arguably the greatest hockey player of all time.

Predicting the future in an incredibly complex world is more difficult than predicting where a hockey puck will end up in a limited space constrained by the rules of the game. As individuals, companies and organizations, we cannot predict the exact future, but preparing ourselves for likely future developments is necessary for survival and growth.

I was reminded of this on a recent trip to Antarctica. Our last stop was Whaler's Bay on Deception Island in the South Shetlands, just off the tip of the Antarctic Peninsula. We landed on a beach littered with a post-apocalyptic appearing collection of rusted tanks and rundown buildings and old wooden boats. Uninhabited now, in the 1920s this was a beehive of industrial activity as Southern Right whales were killed and processed to provide whale oil for lighting, and as an ingredient for soap, margarine and automatic transmission fluid. We asked our guide how the site came to be abandoned. It was a classic example of an abrupt paradigm shift. By the early 1930s, petroleum products such as kerosene had become abundant and cheap enough to displace whale oil as a necessary commodity, and Whaler's Bay was closed. It seems that John D. Rockefeller, often viewed as a monopolist robber baron as the head of Standard Oil, had indirectly saved the Southern Right whale from extinction.

The whale oil industry and Standard Oil are long gone. In fact, the average large company struggles to exceed a lifespan of 60 or so years. In recent years, Kodak, Polaroid, GE, GM, Nortel and RIM/Blackberry are a few corporations that have risen like Icarus and then crashed. Perhaps they overly extrapolated the present, rather than focusing on the future and how they needed to evolve to survive. In fact, the Walter Gretzky quote was labelled as one of the most overused corporate clichés in a 2014 Maclean's article,[1] in which John Roth (former CEO of Nortel) was quoted as using it, to which the author opined: "Nortel didn't just miss where the puck was or was going to be, it found itself stuck at home, waiting for someone to give it a lift to the rink."

I don't know the lifespan average for not-for-profit organizations, but the dilemmas are likely similar. Should the focus be on incremental improvements to current activities, or more radical changes in preparation for the inevitable and somewhat unpredictable paradigm shifts of the future?

Thinking specifically of the CRA, we have been blessed with visionary Presidents, Executive teams, Boards and CEOs. Well-informed "gambles," such as splitting our annual meeting from the Royal College in the 1990s, or purchasing the *Journal of Rheumatology* more recently, have cemented our organizational future in an era where funding may be more constrained and digital channels become increasingly important.

Most money is now in the digital cloud, not in bank vaults. Willie Sutton could not adapt to that new paradigm, but a new generation of digital thieves certainly has. Perhaps that is why Sutton's autobiography was entitled "Where the Money Was," in which he denied originating the Sutton's Law quote. By 2020, the CRA President will likely be another Sutton (no relation as far as I know). My advice would be to look to Walter and Wayne Gretzky for direction, not Willie Sutton.

1. Jason Kirby. Available at *https://www.macleans.ca/economy/business/why-business-people-wont-stop-using-that-gretzky-quote/*. Accessed February 10, 2019.

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Update from CIORA

By Janet Pope, MD, MPH, FRCPC

CIORA has funded 92 grants and provided $6,375,982 in research funding; 48 grants in Awareness/Advocacy/Education, 23 grants for Multi-Disciplinary Care Teams, 20 grants for Early Access for Rheumatic Disease Patients and 1 in Health Economics/ Sustainability of Health Care/Quality Improvement, which was a category newly created in 2018. There are important insights from recent grants, as discussed below.

"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"

This research will integrate knowledge translation from a range of different health professionals and policy makers to collaborate on the design and implementation of the study. This process is instrumental in the understanding of barriers faced by musculoskeletal disease populations and should result in policy changes. (Principal Investigator Dr. D. Lacaille).

"Measuring geographic variation in access to care for rheumatoid arthritis patients and related outcomes: A patient-centred approach"

This project will translate results about health services use and cost, and the geographic variability of quality of care and outcomes, into recommendations. (Principal Investigators Drs. D. Marshall and C. Barber).

"Quality of referrals to pediatric rheumatology in Northern Alberta and its effects on access to care"

This study has importance for triage and education. Triage of referrals by the pediatric rheumatology team at the University of Alberta teaches residents how to prioritize and triage. It facilitates knowledge regarding a good referral letter. As a result of data collection, evidence will be gathered for targeting physicians who refer to pediatric rheumatology to educate them around best referral practices. (Principal Investigator Dr. M. Chan).

"Assessing the provision, patterns, and costs of waiting for rheumatology care: a step towards optimizing the care of rheumatic diseases"

This project draws attention to inequitable access to care across regions. Two thirds of the rheumatology patient population are female; thus, inequitable access to care disproportionately affects women. The research also quantified large rheumatology practice volumes, exceeding those of family physicians. The finding that fewer new patients are being seen annually is of particular importance because it implies rheumatology practice sizes (caseloads) are saturated. Thus fewer new patients are being seen, which contributes to increasing wait-times and reduced access to care. Gender differences in clinical activity and remuneration (incomes) between female and male rheumatologists were identified. On average, female rheumatologists provided fewer assessments and saw fewer patients annually relative to males, which resulted in lower earnings. With more women in rheumatology, this has consequences for the calculation of the optimal number of rheumatologists. (Principal Investigators Drs. B. Kuriya, S. Bernatsky, and J. Widdifield).

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London, Ontario

You are invited to submit abstracts for presentation during the 2020 CRA Annual Scientific Meeting and AHPA Annual Meeting!

Deadline for submissions is October 11, 2019.

Details will be available at ***www.rheum.ca.***

Spotlight on the 2019 CRA Abstract Awards

Ian Watson Award for the Best Abstract on SLE Research by a Trainee

Sponsored by the Lupus Society of Alberta
Winner: Dr. Alexandra Legge, Dalhousie University
Abstract Title: Constructing a Frailty Index as a Novel Health Measure in Systemic Lupus Erythematosus
Supervisor: Dr. John Hanly

Phil Rosen Award for the Best Abstract on Clinical or Epidemiology Research by a Trainee

Sponsored by the Arthritis Society – Phil Rosen Memorial Award
Winner: Dr. Lauren King, University of Toronto
Abstract Title: Determinants of Opioid Analgesic Use in Patients with Advanced Knee Osteoarthritis Referred for Consideration of Total Knee Arthroplasty
Supervisor: Dr. Gillian Hawker

Best Abstract by a Rheumatology Resident

Sponsored by the CRA
Winner: Dr. May Choi, Cumming School of Medicine, University of Calgary
Abstract Title: Anti-NT5c1A Autoantibodies in Systemic Lupus Erythematosus
Supervisors: Dr. Marvin Fritzler and Dr. Ann Clarke

Best Abstract on Basic Science Research by a Trainee

Sponsored by the CRA
Winner: Ms. Remy Pollock, University Health Network
Abstract Title: Differential Expression of Human Endogenous Retroviruses in Psoriatic Disease
Supervisor: Dr. Dafna Gladman

Best Abstract by a Post-Graduate Research Trainee

Sponsored by the CRA
Winner: Ms. Carolina Muñoz-Grajales, University of Toronto
Abstract Title: Presence of Microparticle Containing Immune Complexes in Asymptomatic ANA+ Individuals Despite the Absence of Inflammation
Supervisor: Dr. Joan E. Wither

Best Abstract on Quality Care Initiatives in Rheumatology

Sponsored by the CRA
Tie for 1st place
1st Co-Winner: Dr. Cheryl Barnabe, Cumming School of Medicine, University of Calgary
Abstract Title: Participant-Reported Effect of an Indigenous Health Continuous Professional Development Education Initiative
2nd Co-Winner: Dr. Ines Colmegna, McGill University
Abstract Title: High Dose Influenza Vaccine in Seropositive Rheumatoid Arthritis Patients: Results of a Randomized Controlled Trial

Best Abstract by a Medical Student

Sponsored by the CRA
Winner: Mr. Leonardo Calderon, University of Ottawa
Abstract Title: Methotrexate for Giant Cell Arteritis
Supervisor: Dr. Nataliya Milman

Best Abstract by an Undergraduate Student

Sponsored by CRA
Winner: Ms. Andrea Carboni-Jimènez, McGill University
Abstract Title: Caregiving Intensity and Perceived Burden Among Informal Caregivers of Persons with Systemic Sclerosis Compared to Other Chronic Medical Conditions
Supervisor: Dr. Brett D. Thombs

Best Abstract by a Rheumatology Post-Graduate Research Trainee

Sponsored by CRA
Winner: Mr. Andre Luquini, University of British Columbia
Abstract Title: Identifying Determinants of Presenteeism in Workers with Inflammatory Arthritis
Supervisor: Dr. Diane Lacaille

Best Abstract on Research by Young Faculty

Sponsored by the CRA
Winner: Dr. Bindee Kuriya, University of Toronto, University Health Network
Abstract Title: The Risk of Acute Mental Illness Service Use in Rheumatoid Arthritis and Ankylosing Spondylitis: A Population-Based Cohort Study

Presidential Address

A Message from the CRA President, Dr. Vandana Ahluwalia

As I enter my second year as President of the CRA, I am excited for the year ahead with many initiatives and projects set to take off as we approach our association's 75th anniversary in 2021. Today, I look back at an amazing membership-focused year, teeming with collaborative efforts across our various committees and partner organizations.

Building upon the great work of Dr. Joanne Homik, my predecessor, and focusing on the CRA's strategic priorities have allowed our association to tackle various challenges that we face. We will be striving to understand and serve our members' needs and wants based on their gender, demographics and career stage.

Communications and collaboration, both internal and external, remain a priority for our association. Our communications-related priorities have been several-fold through knowledge transfer and support by virtue of our Indigenous Health Competency Initiative, a member-exclusive program; communicating drug shortages; developing a Medical Cannabis Position Statement; and updating the Biosimilars Position Statement. In addition, the Human Resources committee has also kicked off with new co-chairs this past year who are scoping the ongoing issues in workforce management and preparing the 2020 edition of the "Stand Up and Be Counted" survey. Collaboration this past year is setting the stage to work closely with national and international organizations towards "living" or dynamic guidelines, as well as the development of a special interest group in pediatric musculoskeletal (MSK) care at the Canadian Paediatric Society. With the initiation of the new Stakeholder Engagement Committee, this group will be focused on building relationships and elevating the CRA's voice. With this voice, I am sure that we will be able to lead our membership on new evolving and controversial issues.

In this new age of developing technologies and ever-decreasing funding, opportunities as well as challenges arise as we look to empower the CRA and our membership. We must continue to leverage newly formed partnerships and tap into the expertise of our membership to open new doors while remaining at the forefront of the conversation and leading arthritis care.

For members attending the American College of Rheumatology (ACR) meeting this November, I am excited to connect at our next annual Canada Night in Atlanta. I also look forward to seeing you all on February 26-29, 2020, in Victoria, British Columbia, at our 74th Annual Scientific Meeting. Don't forget to make time in your schedule to attend one of our new offerings on February 26: the CRA review course for practicing rheumatologists or the CRA/Arthritis Society Research Day for the arthritis research community.

Vandana Ahluwalia, MD, FRCPC
President,
Canadian Rheumatology Association
Former Corporate Chief of Rheumatology,
William Osler Health System,
Brampton, Ontario

Distinguished Rheumatologist: Dr. Edward Keystone

Why did you become a rheumatologist? What or who influenced you along the way to do so?

Having completed a year of laboratory research on rheumatoid arthritis as an allergy fellow, I was asked by Dr. Murray Urowitz, Dr. Hugh Smythe and Dr. Metro Ogryzlo to enter the field of rheumatology. I couldn't resist. Who could? Best thing I ever did.

Why is it important to you to work as a consultant to the pharmaceutical and biotechnology industry and as a member of numerous biopharmaceutical advisory boards?

Despite the concept that industry was the "dark side," I came to realize that it was the pharmaceutical/biotechnology industry that generated all of the novel therapies that would be "game changers" in the field. I loved the idea of being at the forefront of the new wave of therapies that would substantially improve the lives of our patients.

You have been the recipient of numerous accolades over your career, including being chosen an "Alumnus of Influence" by the University College of the University of Toronto in 2012 and "Rheumatologist of the Year" by the Ontario Rheumatology Association in 2014. What was your first thought when you learned you won this CRA award?

I was gratified by the concept that my peers chose me as a leader amongst such a group of respected colleagues who are dedicated to making a difference to our patients.

In 2003, you established The Rebecca MacDonald Centre for Arthritis and Autoimmune Disease – a centre devoted to research of genomics, therapeutics, and outcomes in autoimmune inflammatory joint disease. As Director of the Centre and head of the Advanced Therapeutics Division, what led you to focus your research on novel therapeutics in rheumatoid arthritis?

At the time I chose to enter the field of therapeutics, I realized that a sea of change was coming to the field of rheumatology with the advent of biologics. As an immunologist, I was particularly excited by the concept of selective targeting of the specific inflammatory molecules driving the disease in rheumatoid arthritis.

In concert with Dr. Katherine Siminovitch, you are currently developing the Centre for Excellence in Personalized Medicine in Arthritis and Autoimmune Disease at Mount Sinai Hospital. What are you hoping to see with the development of this program and how will it impact the rheumatology landscape?

I believe that an understanding of the genetic influences in our autoimmune disorders is the only way to have a better understanding of the pathogenesis of these conditions with a view to predicting who will get them, what will be the outcome and, particularly, how to select the right drug for the right person at the right time through personalized medicine.

What major changes to the landscape of rheumatology have you witnessed over the course of your career?

I have been extremely fortunate to witness the concept of selective targeting of pathogenic molecules in arthritis through biologics and new targeted small molecules in the form of JAK inhibitors. This is the most amazing time ever in the history of the treatment of rheumatic diseases. We have gone from needing 40 dedicated inpatient beds for rheumatology patients in Toronto hospitals in the 1970s to needing only three dedicated beds in the city in 2019. That says it all.

What is the greatest professional and organizational challenge you have faced, and how did you address/overcome this challenge?

Raising sufficient funds to create a personalized medicine program in our Centre of Excellence at Mount Sinai Hospital. I addressed the challenge by not quitting, ever!

How has your work helped shape the field of rheumatology here and elsewhere?

My work has been dedicated to enhancing the acquisition of new and novel therapies in Canada and educating my

colleagues as to how to optimize the best way to improve outcomes.

What do you foresee as challenges to Canadian rheumatologists in the future and what can individual rheumatologists and the CRA do to meet these challenges?

I see a major challenge in enticing Canadian rheumatologists into basic laboratory research in the field as a consequence of dwindling resources from government and elsewhere. With the advent of biosimilars, industry funding is also being eroded for investigator-initiated studies and observational databases.

Given your extensive work in the field of rheumatic diseases, where do you anticipate clinical research moving within the next decade?

Translational research from bench to bedside to understand the fundamentals of the pathogenic process driving the diseases, and applying them to improve the outcomes using personalized medical approaches.

Your identical twin is also a world-renowned physician. How has that relationship influenced your medical career?

My career was strongly influenced by my older brother who convinced me that I could be a teacher in the field of medicine. We succeeded in undergraduate courses by working together and trying to compete with each other at the highest levels. As the Gold Medalist in our U of T medical school class, and a recipient of the Order of Canada, my brother, Jay, set a high standard for me to live up to. In the end we both turned out to be educators in the field of therapeutics. How amazing and truly gratifying.

Two "Keystone rules" are often cited when discussing the outcomes of RA trials. How did you come up with those? Will any therapies eventually improve on the outcomes cited by these rules? Which ones?

I came up with the "Keystone Rules" with my interest in therapeutics by scanning the literature on all of the new therapies and realized that these rules applied to the responses to all the new agents. It was truly an epiphany! The most recently developed JAK inhibitors will improve the outcomes set out by the Keystone Rules. I'm happy about that!

You are known to have a great interest in animals, particularly horses. Have you learned anything from animals that helps in your day-to-day life in medicine?

My wife introduced me to horses while I was doing research in London, England. We were learning to jump but I went over the bar more than my horse, so I learned a lot about humility. Riding was a great source of relaxation (once I learned to ride) and a way to get into the country and away from the madding crowd.

What do you like most about living in Ontario?

The ability to live near the city and still enjoy the beautiful countryside.

What is your dream vacation destination?

Just living on my farm with my family and enjoying my three dogs, two cats and one horse running around.

What book would you bring with you on a deserted island?

I wouldn't go to a deserted island. I am a lousy swimmer, but I love the idea.
P.S. I never read books outside of medicine – no time!

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Womb-Mates: U of T Professors, Alumni and Twins Jay and Ed Keystone Pay It Forward

By Edward C. Keystone, MD, FRCPC; and Jay S. Keystone, CM, MD, MSc (CTM), FRCPC

Professors of Medicine Jay and Ed Keystone, both BSc '65, MD '69, are esteemed clinicians, researchers, educators and mentors — and foremost experts in their respective fields. Jay, a travel and tropical medicine specialist at University Health Network, is a member of the Order of Canada, and Ed is a Master of the American College of Rheumatology. They reflect on the people who got them to where they are today, and what it means to pay it forward.

Dr. Jay Keystone (left) and Dr. Ed Keystone (right).

In 1943, we were "womb-mates" for a mere seven months, entering this world together weighing a total of six pounds. We later found ourselves failing in public school. Not because we were bored, but because we were not very bright. We are the same students who were told by our public school principal that we would never get to university. The same mediocre high school students who, later, through sheer hard work, graduated at the top of our medical school class (University of Toronto [U of T]) and who have since enjoyed academic careers in the Faculty of Medicine at this great university.

What is our point, you ask? Our point is this: it doesn't matter where you begin or even how well you begin, but where you end up. And, recognizing the help of the people who got you to where you are, it's up to you to pay it forward to those who will come next.

So, how could two mediocre students find their way into the competitive world of medicine? We started our university careers in commerce and finance at U of T, from which we extracted ourselves at the beginning of second year. We had received advice from a newly graduated physician from the University of Michigan, our cousin, Jay Allen Keystone.

"Why don't you go into medicine?" he asked.

"Because only students dedicated since toilet training and Ontario Scholars go into medicine," we answered.

His response changed our lives: "Dedication in medicine is important when you come out, not when you go in."

With this lesson from his experience as a new physician, he paid it forward.

Academic institutions are not homogeneous, and neither are the departments within them. One of the first lessons we learned about academic medicine is that, apart from ability, there are two ways to succeed: you can step on or over your colleagues in your quest to reach the top, or you can be kind and fair to those with whom you work.

Treating colleagues equally and with kindness has been a rule that we have diligently followed throughout our careers. This philosophy has paid us both enormous dividends. We have been given unexpected opportunities in leadership positions in our specialty societies and the university. Not because we are brilliant (we are not), but because we treat our colleagues, whether specialists or not, with respect, and have always been very supportive and attentive to their requests for assistance.

One notable anecdote comes to mind: When Jay received his stem cell transplant from his "spare parts clone" brother Ed at Princess Margaret Cancer Centre, he was visited by several colleagues from Toronto General Hospital and, unexpectedly but appreciatively, by a maintenance man who learned about his illness and came to provide support. Similarly, when he was admitted to Toronto General Hospital repeatedly this year, senior nurse administrators with whom he worked many years ago on the general medical wards provided invaluable support. Treat people well, and you will be well treated.

As medical educators, it is our job to train the next generation to be better physicians than we were. Basically, to "train ourselves out of a job."

There were many wonderful educators who came before us. At the University of Toronto, Arthur Scott, MD '53, taught us how to solve medical problems from first principles utilizing basic physiology. Hugh Smythe, MD '50, taught rheumatologic physical examination, following which Ed now teaches rheumatology fellows all over the world to do an expert joint exam. Joe Marrotta, an outstanding clinical neurologist at St. Michael's Hospital taught us to evaluate neurological events first anatomically and then functionally in the days before CT and MRI were even on the horizon. His colleague Peter Kopplin, MD '63, the quintessential, caring and consummate internist who, in his quiet, understated way, demonstrated the importance of the doctor-patient relationship.

And finally, Bob Goldsmith, a tropical medicine expert from University of California, San Francisco, encouraged his colleagues (namely Jay) to step down from leadership positions "sooner than later" to allow younger clinicians to take over and make their mark. It is very important, and often difficult, to know when it is time to step back for the next generation, a subtler form of paying it forward.

Someone once wrote, "A good education can change anyone, but a good teacher can change everything." We have tried to give the next generation the benefit of our experience and knowledge, inspired by those outstanding clinicians who came before us.

Our lesson to everyone reading this is to think about the people who made an impact or provided you with mentorship, and how you can pay it forward to others.

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Distinguished Investigator: Dr. Diane Lacaille

You are credited as a pioneer in the use of administrative data for quality of care and pharmacoepidemiologic research. What led you to focus on these areas of interest?

The research questions I pursue in my research program are usually inspired by my clinical practice. I started my practice in 2000, at a time when new treatments and approaches completely changed the landscape for rheumatoid arthritis (RA) and opened the door to new possibilities of controlling this terrible disease and preventing joint damage, in ways that had never been possible before. But what struck me early on, was that some patients were completely left out of the game. They were accessing care too late. Having the most effective medications available is of no use, if patients are not accessing care. This is what got me interested in evaluating quality of care at the population level, having the ability to look at everyone across the province, not just the people that we see regularly in our practices.

I expected that care would not be perfect, but I was shocked when I got the results of my first study showing that only half of the patients in British Columbia labelled as having RA by family physicians were being referred to rheumatologists, or started on disease-modifying antirheumatic drugs (DMARDs). At first, I didn't believe my results. But then I remember, shortly after getting those results, seeing a patient in clinic from a rural area, with advanced RA deformities, who had never been on a disease-modifying agent. I knew I was onto something real. Since then, others have noted similar findings in other provinces. Things are better now, but they're still not as good as they should be. The problem is that we don't know what we don't see. We have to design ways of systematically measuring the quality of care received by everyone, if we want to understand care gaps and improve things.

How has your work impacted the local Canadian RA landscape?

I think these results were an eye-opener for many people. In British Columbia, the Ministry of Health and arthritis stakeholders embarked on a chronic disease management strategy for arthritis. Local RA guidelines for family physicians were developed. These results were instrumental in having RA selected as a target for a provincial Practice Support Program, which integrates practical tools in physicians' practices to support the management of RA by family physicians. Nationally, our research and that of others, identifying similar gaps in care, sparked interest in developing alternative models of care and in developing systems to evaluate the impact of those models of care. The Arthritis Alliance of Canada has done a lot of work in that regard.

You have explored the impact of community-based research, for example with First Nations communities, to develop and evaluate arthritis programs consistent with Indigenous approaches to health. Why is "community-based" research important in the field of rheumatoid arthritis?

When working in partnership with Indigenous communities, a community-based approach to research is absolutely essential. For research to have a real impact and properly address the needs of the community, there has to be buy-in for the research conducted. For this to happen, the community has to be actively involved throughout the process: Setting the research priorities, identifying the needs, providing input, and ensuring that the arthritis services created are consistent with their values and priorities. These relationships take time to develop and have to be built on trust and respect. Having arthritis services that are consistent with Indigenous approaches to health will, hopefully, help reduce the health inequalities observed in First Nations communities.

Why did you focus on employment and developing Making it Work™, the first comprehensive program to prevent work disability in people with inflammatory arthritis?

As a rheumatologist, I see how people with arthritis often struggle to continue working, and I recognize how much

work means to our patients. It is much more than a source of finances. It is an important part of their self-identity, their sense of contribution to society, their social interactions, and so much more! I am constantly amazed by people's ability to continue forging ahead despite the challenges they encounter at work. People are so resourceful! Their resilience is what inspires me to continue on with my research, to find ways to allow them to continue working, because it matters so much to them.

What future directions do you wish to pursue in your own research? What general developments would you like to see in the field of rheumatology and arthritis care?

I want to continue to design and evaluate strategies to improve the delivery of care for arthritis and for the other diseases that occur as complications of inflammation. I think that we need to leverage technology to improve care, at an individual level, using eHealth technologies so people can be more engaged in their care, like the app we have designed to allow people to self-monitor their RA disease activity; as well as at a system level, by taking advantage of electronic medical records and other sources of data, so we can measure and provide feedback in real time, for continuous quality improvement. I think eHealth technology is going to transform how we provide care in ways we can't even imagine right now.

What advice would you give to someone looking to pursue a career as an academic rheumatologist?

I would say that it is a very rewarding career. Yes, it requires hard work and perseverance, there are many challenges along the way, especially in the current funding environment. One has to learn to let things roll off your back: the grants that get rejected, the manuscripts that need to be resubmitted. You learn what you can from it, and then move on, and try again. It is also crucial to have a good mentor, someone that can help you navigate the system, give you wise counsel, have your best interest at heart and open doors for you. It is also very important to not get overcommitted in clinical work. Patients always come first, but one needs protected research time to succeed.

But despite all the challenges, it is all well worth it! I find my work continuously stimulating and intellectually challenging. I love the diversity of my days. When projects finally come to fruition, it is very satisfying to see or feel the impact of the work done. Some of my most memorable moments have been hearing participants from the Making it Work program describe how much this program has changed their lives and how much it has meant to them.

What is your guilty pleasure television show?

I don't watch any TV at all! Only the Olympics and the news.

Dr. Diane Lacaille receiving her award from Dr. Vandana Ahluwalia.

What is your favourite place to travel to?

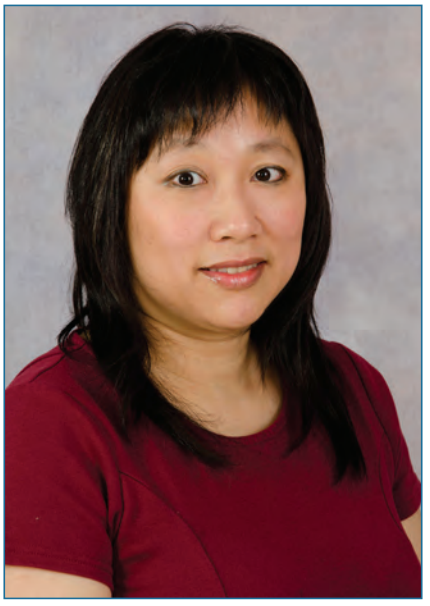
My favourite travelling is taking off on our sailboat and heading north along the coast to places where only boats can go, away from the roads, where you can't hear any cars. I cherish the moment we turn off the engine, let the wind fill the sails and feel at one with the ocean. It doesn't matter where we are, I just love being at anchor at night in a quiet bay, watching the night fall and the stars appear in the sky.

Drs. John Esdaile and Kam Shojania presented a hilarious video at the CRA Gala introducing your award. What are they like to work with?

They are extremely smart, as quick and witty as in the video, and incredibly supportive! I could not have asked for a better mentor and a more supportive Division Head.

Diane Lacaille, MD, FRCPC, MHSc
Mary Pack Chair in Rheumatology Research
Professor of Rheumatology,
University of British Columbia
Senior Research Scientist,
Associate Scientific Director,
Arthritis Research Canada
Richmond, British Columbia

Teacher-Educator: Dr. Shirley Tse



From where do you think your passion for medical education stemmed?

It has always been great to be around learners of all levels, and not only being part of helping them acquire new knowledge but also learning from them as well. I am humbled that my trainees keep me young and current at the same time. This has translated well in my role as program director (PD) for the pediatric rheumatology training program at SickKids, University of Toronto. My PD role and completing the Education Scholars Program has laid the foundation for being innovative and creative in curriculum development, interactive teaching, learner assessments, mentorship and using technology to teach.

You have been the recipient of many prestigious teaching awards, but what was your first thought when you learned that you would receive this particular award? Are you still surprised when you win?

I was completely unaware and very surprised when I learned that I was the recipient of this award. In fact, I was in the midst of a Competency by Design (CBD) workshop when I kept getting messages from my rheumatology colleagues (my amazing nominators) to check my email. It was an amazing feeling and a true honour to be recognized, considered and ultimately to receive this prestigious teaching award.

What do you believe are the qualities of a good educator? Moreover, how do they apply to you?

There is always a teachable moment even in a busy clinical environment. There is never a bad question, and learners should always be made to feel safe to ask their questions or to understand the rationale behind the answer. The key to making learning stick is to simplify and promote understanding rather than memorization. This is best demonstrated by many of our talented faculty who teach immunology to our trainees. It is one of the hardest topics to master but a vital one for all rheumatology trainees and the best educators do so in a passionate, clear and simple manner with associated clinical applications ("immunology talk-show translators"). At the same time, I have learned from the best educators to acknowledge your own limits, and that you may not always have the answers, even as faculty members. However, you can make a plan together with your learners to explore the question at hand, review the literature, regroup and to discuss again. It is equally important to be flexible with your teaching, and to try to align it with the learning style that best suits your trainees. The ultimate goal is to develop independent critical thinkers, and for them to achieve their personal best, but at the same time to remind them it is important for them to share their knowledge with others.

Can you recall a teacher in your own past who inspired your direction into education?

I have been very fortunate to be surrounded by a plethora of amazing and talented educators throughout my training and currently in my career. Akin to an anthropologist on a field excursion, I enjoy taking the time to watch and absorb how successful scholarly educators teach and produce scholarship and try to incorporate their valuable tips into my practice.

Currently you are involved in the development of national Entrustable Professional Activities and Milestones through the Royal College in preparation for the implementation of Competency by Design (CBD). Can you explain what CBD is and how this impacts the medical education environment?

It is aligned to the concepts of precision or personalized medicine in the care of our patients. CBD moves away from a time-based approach to a more personalized competence in key knowledge, skills and abilities that residents acquire as they progress along the developmental stages of their rheumatology training program. At each stage, there will be specific tasks or entrustable professional activities (EPAs) that residents must be able to demonstrate independently. Each EPA is broken down into multiple smaller tasks or milestones that residents can work on and develop to make this more manageable, and get coaching feedback, but also progress according to their proficiency. At the same time,

it will help teachers and assessors focus and observe on the specific clinical activities and skills necessary for the resident according to their stage of training, and to personalize the support and expectations according to each resident's development, progress and proficiency. Ultimately, CBD strives to ensure that graduating residents are competent and have the skills and behaviours to meet the evolving patient needs in addition to optimizing patient outcomes.

What projects are you currently excited to be working on, and what projects would you like to undertake in the future?

I have different clinical, educational and quality improvement projects that I actively work on. In the educational field, I am really interested in using technology to teach, geared towards different learners including medical trainees, healthcare providers and patients/families. As such, my educational projects include web-based learning modules to teach pediatric rheumatology, development and use of educational videos and exploring use of virtual reality (VR) in the clinical learning environment. I am also interested in using gamification as a learning tool and enhancing learner engagement.

Since becoming the Program Director for the Paediatric Rheumatology Training Program at the University of Toronto in 2007, how has the nature of training physicians in this field changed?

Both the fields of rheumatology and medical education have been very fluid and the training program has adapted to respond to the ongoing advances and changes accordingly. The curriculum and clinical environment has been transformed to keep the trainees abreast of the changes, including but not limited to increased understanding of rheumatologic diseases (*e.g.*, expanding autoinflammatory disease spectrum), therapeutic targets (including biologic agents and small molecules), innovative imaging applications (*e.g.*, vascular imaging techniques, whole body MRI, US/POCUS) and incorporation of personalized/precision medicine (utility of data, biomarkers, genes, motivational interviewing, shared decision making). From the medical education aspect, we have created a framework for developing holistic physicians via the Royal College CanMeds competencies, attention to quality improvement and patient safety initiatives, and ultimately a move towards a new CBD approach. Additionally, with our digital native learners, there has been the implementation of various technology into the clinical and teaching environment, including web-based learning, educational videos, e-rheumatology resources, joint injection simulators, e-health platforms and medical apps. There are also more opportunities for trainees to engage in scholarship in clinical research, basic/translational research, education/teaching, quality improvement, musculoskeletal (MSK) ultrasound and leadership opportunities during their core fellowship or additional years of training.

Dr. Shirley Tse receiving her award from Dr. Vandana Ahluwalia.

What is a hidden talent of yours that not many people know about?

I enjoy doing activities with my family. As such, we have been doing family karate for almost 12 years now. We are all third degree black belts and, yes, I can handle all the weapons that "The Teenage Mutant Turtles" use. I even placed first at a karate tournament…. in the women's middle age and early geriatric category…. but the trophy still sits proudly in my office.

What was the first concert you ever went to?

I confess that I have a soft spot for "boy bands." They have been my staple background music for simply relaxing, studying and writing. My very first boy-band concert was to watch the Canadian Band known as Glass Tiger. It would only take me 20 years later to finally enjoy the famous New Kids on the Block and Backstreet Boys (NKOTBSB tour). Fortunately at this later stage of my life, I could afford to sit in the front row seats by the concert stage.

Shirley Tse, MD, FRCPC
Associate Professor,
Department of Paediatrics
University of Toronto
Staff Rheumatologist, Program Director,
The Hospital for Sick Children
Toronto, Ontario

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† Prescription and physician data were obtained from eXel™ support program enrollment forms collected from June 2014 to November 2018

References:
1. Pfizer Canada ULC. XELJANZ/XELJANZ XR Product Monograph. February 4, 2019.
2. Health Canada. XELJANZ XR Notice of Compliance information.
3. Pfizer Inc. Data on file. 2018.
4. Health Canada. XELJANZ Notice of Compliance information.

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Emerging Investigator: Dr. Glen Hazlewood

What inspired you to focus your research on drug effectiveness and patient treatment preferences?

First, it was great mentors! My research interest started through my involvement in the CRA Rheumatoid Arthritis (RA) Guidelines. I started this as a fellow, and became interested in how treatment decisions are made, both within guidelines and with individual patients. It also opened my eyes to how much we still don't know about the decisions we make every day.

Recently, you have been awarded a four-year grant to conduct a multi-centre randomized controlled trial of drug reduction in patients with RA in sustained clinical remission. What are your hopes or expectations regarding the outcome of this study?

Our hope is that, through this trial, we can show it is possible to safely reduce medication in many patients who are doing well (in remission). Importantly, we are designing our trial to be as "pragmatic" as possible, meaning that it reflects how tapering would typically occur in actual practice. Our hope is that the results will help patients and rheumatologists decide whether tapering (reducing treatment) is appropriate or not once patients have achieved sustained remission.

How do you manage teaching students as an assistant professor on top of running your research programs?

If things work well, it actually makes everything easier! Not to mention, it ensures you stay up to date.

You have established a collaboration between several international groups, including Cochrane and the American College of Rheumatology, to conduct collaborative "living" evidence reviews. What type of emerging results have you noticed and how will this impact the RA treatment landscape?

A major challenge with guideline development is staying on top of rapidly changing evidence. There is also a lot of duplication of effort. Our hope with this project is that guideline groups can collaborate on the evidence-review aspect of guideline development and maintain this effort over time. An early lesson I've taken from this work is that effective collaboration benefits everyone.

You already have many long-term research projects running at once, but what other future directions would you like to focus on? What are your hopes for the general direction of development in the field of rheumatology?

Treatment choices are becoming more complex. We have more treatments, and will see more evidence to inform treatment selection, including typical evidence (randomized and non-randomized studies) and newer precision diagnostics. A major challenge will be how to integrate this evidence to inform patient-centred treatment decision-making. My hope is that we can solve these challenges by considering the entire decision process when prioritizing and designing research studies.

What are some of the highlights and challenges you have experienced thus far in your career? How have you overcome these challenges?

The nice (and hard) part of academic medicine is that you get constant little rewards (and disappointments). Balancing clinical, academic and family life is also challenging – but also keeps me grounded. My kids couldn't care less if my paper is rejected!

What was your first thought when you learned you would receive this award?

Thrilled!

For those wanting to pursue rheumatology and a career in research, what advice would you give them?

Try it, even if you're unsure. I never had thought about rheumatology until I tried it right before the Canadian Resident Matching Service (CaRMS) match, and hadn't really thought about research until I tried it in my fellowship.

Your success in obtaining research funding is commendable, with over one million dollars as a principal investigator. Any tips you can offer on the subject of making a solid grant proposal?

Keep it simple, add something a bit novel, and don't oversell what you are doing. Get someone who can be objective to read/critique your grant and keep trying because there's a lot of luck involved.

If you weren't pursuing research as a career, what would you be doing?

Clinical rheumatology – which I still really enjoy! Probably more vacations as well. Wait a second, that sounds quite nice…

Are you more of a morning or night person?

Morning – although it depends on the day!

How many cups of coffee does it take to make a productive day?

At least three.

If you could eat one food for the rest of your life, what would it be?

Sushi.

Glen Hazlewood, MD, FRCPC
Assistant Professor,
Departments of Medicine and Community Health Sciences,
Cumming School of Medicine,
University of Calgary,
Calgary, Alberta

Dr. Glen Hazlewood receiving his award from Dr. Vandana Ahluwalia.

RheumJeopardy! at the 2019 CRA ASM

By Philip A. Baer, MDCM, FRCPC, FACR

Building bridges was the 2019 CRA Annual Scientific Meeting (ASM) theme, which *RheumJeopardy* supported through gamification, bringing together more than 200 participants on the Friday afternoon of the ASM at the Fairmont Queen Elizabeth in Montreal. Once again, the participants were divided into East and West teams, with the boundary zigzagging through the Greater Toronto area. Both my office in Scarborough and my home in North York put me in the East camp, but I displayed my East-West socks to the audience to show neutrality. Our Chair was Dr. Rosie Scuccimarri, last year's winning East team captain, running the show after a tough night on-call. She wore a dizzying array of Eastern team sports sweaters in 2018. This time, she showed her neutrality by starting off in a mid-Canada Winnipeg Jets jersey, but by the end showed her true colours with a Montreal Canadiens top. We had new captains this year: Valérie Leclair from the Jewish General Hospital in Montreal for the East, and Jennifer Reynolds from St. Paul's Hospital for the West.

Thanks to Mark Atkinson and his superb audio-visual (AV) team, we had absolutely no technical glitches this year. Everyone in the audience could participate using the PollEverywhere app. Through spelling errors, I accidentally invented a new disease "dermatomyosotis," and found out I had D-J dyslexia when I misspelled the famous Dr. Van der Heijde's name. Glaringly obvious when you use size 60 font on your slides! Others do make errors too: One question this year showed an X-ray image of the spine in ankylosing spondylitis, which had been mislabelled as showing osteoarthritis (OA) of the knee in a 2016 print issue of the American College of Rheumatology (ACR) publication "The Rheumatologist."

Categories this year were familiar: Rheum Potpourri, Rheum Art, Old Drugs New Tricks, OA, Sight Diagnosis and Numbers. As the 2018 version was low scoring, we played only Double Jeopardy this year, with point values ranging from 200 to 1,000. Themes common to several questions included autoinflammatory syndromes, pediatric rheumatology, diseases/mutations that protect against other diseases, and rheumatology drugs which have been repurposed to treat non-rheumatic diseases.

After Rosie showed photos of her knockout punch against David Robinson from the 2018 match, I reviewed Jeopardy news from 2018, including rumours that Alex Trebek might retire. This was the basis of our sample question on his possible replacements. The answer was Laura Coates, an American legal commentator, not to be confused with rheumatology's Laura Coates of TICOPA and minimal disease activity fame.

Dr. Philip Baer, host of *RheumJeopardy!* 2019, pictured with Dr. Valérie Leclair (Team Captain of the East), Dr. Jennifer Reynolds (Team Captain of the West), and Dr. Rosie Scuccimarri (Chair of this year's event).

Then it was on to the real game, which was fast-paced and high scoring. Knowing already that sickle-cell trait protects against malaria, and human leukocyte antigen (HLA)-B27 protects against human immunodeficiency virus (HIV), this year's questions revealed that Familial Mediterranean Fever (FMF) protects against bubonic plague, and that a gene which protects against frostbite predisposes carriers to developing OA.

Once again, we found out that antimalarials are the proverbial Swiss army knives of rheumatology. Not only do they prevent and treat malaria, and treat rheumatoid arthritis (RA), systemic lupus erythematosus (SLE) and a host of other rheumatic diseases, but our answers revealed they might work against Zika virus and also protect against HIV (using a vaginal implant developed at the University of Waterloo). Do antimalarials work as OA therapies? The answer to that question may be revealed in a future *RheumJeopardy* (for those who can't wait, consult the results of the HERO study online).

As usual, I tried to highlight Canadian research. We found out that the team defining RA flares for OMERACT, led by Dr. Vivian Bykerk, did not include swollen joints in their flare definition, using only patient-related outcomes (PROs). We also found out that Drs. Janet Pope and Dafna Gladman may be prolific researchers, but they were not lumped into the category of "hyperprolific" authors, who average publishing a scientific paper every 5 days, according to a recent article in *Nature*. Two rheumatologists did make that list: the European pairing of Dr. Maxime Dougados and the aforementioned Dr. van der Heijde.

Questions which stumped both teams included the antinuclear antibody (ANA) titre used as an entry criterion in the new

ACR-European League Against Rheumatism (EULAR) SLE classification criteria (Answer 31:80), and one which revolved around calculating the total daily dose of naproxen and ibuprofen a patient was consuming when they mistakenly mixed Advil 12 hour, Advil Arthritis, Motrimax and Aleve together.

We covered 15 of 30 questions on the game board by the time Final Jeopardy rolled around. The category was famous Canadian pediatric rheumatologists. The question centred on a patient with a syndrome of rashes, joint pain, red eyes and migraines, who went undiagnosed until his daughter was born and presented with a similar clinical picture. He researched the cause using Dr. Google, and eventually called Dr. Ron Laxer (the correct person to choose in Final Jeopardy), who confirmed a diagnosis of Muckle Wells syndrome, a form of cryopyrin-associated periodic syndrome (CAPS) mediated by a defective pyrin inflammasome. All of this was captured on CBC radio by Dr. Brian Goldman as part of his White Coat, Black Art series. Dr. Laxer was in the meeting room to bask in the glory, and both teams chose his name correctly.

The final score was East 13,200 and West 10,400. We may be back for a rematch in Victoria at CRA ASM 2020. Thank you to all those who participated.

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

The 4 H's of Biomarkers: Help, Harm, Hype & Hope

By Gilles Boire, Dunlop-Dottridge Lecturer

It was an honour to present the 2019 Dunlop-Dottridge Lecture in Montréal. I am an academic adult rheumatologist (also treating kids with rheumatic conditions) and a researcher in Sherbrooke, Québec. Mentors André Lussier and Henri H. Ménard in Sherbrooke, and Joe Craft and John Hardin at Yale University, introduced me to scientific rheumatology. My research has evolved from fundamental work on autoantigen/antibody systems to translational work on prognostic biomarkers in recent-onset inflammatory polyarthritis.

The ABC's of Biomarkers

Biomarkers are variables that can be objectively measured from fluids, such as blood or urine, from cells or tissues, from imaging, and even from your smart watch. They are used for diagnostic, prognostic or pathogenic purposes, or to monitor disease activity, treatment response or toxicity. Variables indicative of patients' feelings, well-being or functional status are NOT biomarkers. A biomarker may consist of a single variable or summarize multiple variables (then called a composite). The ideal biomarker informs clinical management, and is safe, easy to measure, sensitive, specific, reproducible, consistent across gender and race, and cost-efficient. Biomarkers are frequently correlated (*e.g.* C-reactive protein [CRP] and erythrocyte sedimentation rate [ESR]), and the information they generate may be redundant.

Current Biomarkers

Problems arise when the presence or absence of a biomarker takes precedence over the clinical characteristics. Healthy individuals may be labelled at risk for disease development, generating unnecessary anxiety and potential harm. Conversely, absent biomarkers may delay correct diagnosis. Sometimes biomarkers point in the wrong direction. It is thus critical to carefully consider all clinical findings when ordering and interpreting biomarkers, as the Choosing Wisely Canada campaign suggests.

Unrelated changes in practice may alter the course of disease and the pertinence of some biomarkers; similarly, a widely used biomarker may induce changes in care that may blunt its original impact. Finally, biomarkers do not holistically represent the actual patients; remember the importance of patient-derived variables.

Next-Generation Computational Biomarkers

Computational biomarkers originate from extremely rich data generated by ever more efficient molecular technologies, such as high throughput DNA sequencing, single cell gene expression, and microbiome and epigenetic studies. Making sense of such a large volume of data (big data) requires advanced statistical methods and techniques well beyond the typical clinician's understanding. Reliance on multiple parameters raises the potential for hidden correlations (*e.g.* microbiota and host genetics), complicating their use in combination with current or other next-generation biomarkers (MultiOmics), clinical parameters, and patient-related outcomes.

My presentation aimed at informing how much technology-driven biomarkers in development differ from the simple ones currently in use and how similar their evaluation should be.

The major difference is that computational biomarkers may inform beyond the crude tools of clinical evaluation, leading to a better understanding of the complex interaction of genes and environment that cause dysregulation of underlying disease. They help to classify patients into narrower, more homogeneous groups, paving the way to personalized medicine tailored to individuals rather than groups; prevention and cure then become potentially more accessible.

The similarity is that an incomplete evaluation of computational biomarkers may harm more than help. Lessons from the past tell us that biomarkers are subject to manipulation, leading to unfavourable outcomes despite increased costs. We will need to evaluate the proposed uses of candidate next-generation biomarkers in well characterized cohorts followed over a long period, to ensure that they are appropriate and result in improved outcomes.

For sure, the next generation of biomarkers based on big data heralds a new, exciting, yet controversial era for rheumatology.

Gilles Boire, MD, MSc, FRCPC
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The CRA Practice Reflection Award: Dr. Jason Kur, Dr. Kam Shojania, and Dr. Ken Blocka

GOLD

Implementation of a Standardized Immunosuppressant Risk Review Checklist

The complexity of rheumatologic patient care has escalated over recent years. The introduction of immunosuppressant and immunomodulatory medicines over the past two decades to treat rheumatic diseases, while immensely helpful for patients suffering from inflammatory conditions, carries potential risks.

Pharmacare data in British Columbia (B.C.) demonstrates that the use of biologic medications continues to rise. Many of the advanced therapeutics used to treat rheumatoid arthritis raise general concerns, for instance, reactivation of tuberculosis and increased risk of infection. In other fields of medicine such as diabetes, anaesthesia, and congestive heart failure clinics, checklists and care reviews have been implemented successfully. This has resulted in evidence-based improvement in patient outcomes. It is also well known that patients with arthritis use healthcare facilities more often (13%) than patients with other chronic diseases (10%) and the general population (5%).

In 2012, rheumatologists in B.C. funded the implementation of an immunosuppressant review tool. This checklist tool, developed by Dr. Kam Shojania, Dr. Ken Blocka, and Dr. Jason Kur (and updated in 2017), explores patient risk factors and potential complications that are encountered when placing patients on prednisone, disease-modifying anti-rheumatic drugs (DMARDs) and biologics. The immunosuppressant checklist tool helps to reduce unwanted exposure to risk and to improve health promotion. It does this through discussion and documentation of activities such as travel and vaccinations.

This tool can be employed on an annual basis in patients with inflammatory diseases (typically rheumatoid arthritis) and it allows rheumatologists to systematically ensure their patients receive the most appropriate counselling.

The immunosuppressant tool has been successfully implemented in all rheumatology clinics throughout the province of B.C. With this widespread uptake in a short period of time, it is our hope this tool will help improve long-term outcomes for our patients and advance the quality of care in rheumatology.

Dr. Jason Kur (middle) receiving the Gold Practice Reflection Award from Dr. Vandana Ahluwalia (left) and Dr. Raheem Kherani (right).

Jason Kur, MD, FRCPC
Clinical Assistant Professor,
University of British Columbia
Medical Director,
Artus Health Centre
President, B.C. Society of Rheumatologists
Vancouver, British Columbia

Kam Shojania, MD, FRCPC
Clinical Professor and Head,
UBC Divison of Rheumatology
Medical Director, Mary Pack Arthritis Program
Vancouver, British Columbia

Ken Blocka, MD, FRCPC
Clinical Professor,
Rheumatology, Faculty of Medicine,
Department of Medicine,
University of British Columbia
Vancouver, British Columbia

1. Arthritis in British Columbia. Prepared by the Arthritis Community Research and Evaluation Unit (ACREU) for The Arthritis Society, April 2010.

The CRA Practice Reflection Award: Dr. May Choi

SILVER

Patient Education is Truly a Joint Effort!

Patient education is an important part of fostering strong patient-physician relationships and improving treatment compliance. Reflecting upon my rheumatology fellowship, I realized that I enjoyed teaching patients about their arthritis; however, I often felt there was limited time in clinic, and that patients would benefit greatly from an interdisciplinary approach. Therefore, a new multidisciplinary patient education program called "It's a Joint Effort" was created to bridge gaps in patients' understanding of their disease. This program was created by myself along with a social worker (Jennifer Nguyen), physiotherapist (Carolyn Johns), clinical pharmacist (Alex Charlton), PharmD student (Sharon Falk), and nurse educator (Melissa DeBelser).

This program is offered at the Richmond Road Diagnostic and Treatment Centre Rheumatology Clinic in Calgary, Alberta, once a month for four hours and is open to any patient who goes to the clinic or lives in the city. We encourage patients to bring a family member or friend to the class. It is designed for patients newly diagnosed with inflammatory arthritis. Each team member speaks for about one hour in their area of expertise as it pertains to arthritis. This includes a discussion about what inflammatory arthritis is, and the role of medications, diet, smoking cessation, joint protection, and exercise. We touch upon important resources like social work and other support programs that are available to arthritis patients. Another critical component of the program is the opportunity for patients to interact with each other, giving them a chance to meet similar people struggling with the condition.

Dr. Vandana Ahluwalia and Dr. Raheem Kherani presented the Silver Practice Reflection Award to Dr. May Choi (middle).

Since our first session in November 2018, we have held five classes and taught 45 patients. Patients filled out a pre- and post-session questionnaire to identify potential future learning needs, assess the impact of the program, and to provide patient feedback. Prior to the session, most patients reported poor understanding of their diagnosis and the management of their condition. After the session, the patients stated that the session helped answer many of their questions and improved their overall understanding of their disease.

We are truly honored to have been awarded the Canadian Rheumatology Association Practice Reflection Grant. The funds are being used to optimize the session experience for patients and encourage attendance. We hope our story encourages others to create similar multidisciplinary education programs across the country and to involve rheumatology trainees.


Pictured from left to right: Alex Charlton, Melissa DeBelser, Carolyn Johns, May Choi and Jennifer Nguyen.

May Choi, MD, FRCPC
Rheumatology Fellow,
Cumming School of Medicine
University of Calgary and Alberta
Health Services
Calgary, Alberta

CRUS: Expanding The Scope of Practice

A Long Road Less Travelled

By Abraham Chaiton, MD, MSc, FRCPC, RhMSUS; Maggie Larché, MBChB, MRCP(UK), PhD; Johannes Roth, MD, PhD, FRCPC, RhMSUS, and Michael Stein, MD, FRCPC

The Italian Job – The Early Years

In 2009, a group of Canadian rheumatologists who expressed an interest in exploring the role that ultrasonography could play in their practice and research found themselves in a small town in Italy near the Adriatic coastline, hosted by a group of enthusiastic and passionate Italian rheumatology sonographers. Two groups of 10-12 novice clinicians spent a week each in Jesi, Italy, at the invitation of Drs. Walter Grassi and Emilio Filippucci.

A core of converted believers set out to form a not-for-profit Canadian Society whose mandate was to foster the use of ultrasonography in teaching, education and research in rheumatology.

CRUS and Its Mandate – The Growing Pains

With the assistance of industry in providing unrestricted educational grants, the Canadian Rheumatology Ultrasound Society (CRUS) was born one year later in 2010.

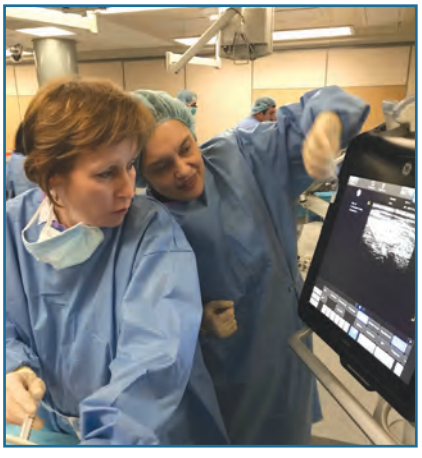
Soon after, a training model was developed consisting initially of a basic course with a faculty representing a mix of Canadian and international expert tutors. The Canadian program was unique in providing several weekends of instruction, integrated anatomy and a year-long provision of electronically supervised scanning feedback. The program was centred at McMaster University.

Progression to the intermediate level courses pre- and post-CRA annual meetings soon followed, as graduates of the basic program demanded more advanced training.

Our core instructors and recent graduates began to participate in research projects that included ultrasound evaluations.

Speaker tours by renowned musculoskeletal (MSK) sonographers were organized in many Canadian centres as a yearly event.

Some highlights included the CRA Great Debate 2012: "Should Ultrasound (US) Be Used in the Rheumatologist's Office?" Debating in favor of this were Drs. Larché and Roth, and debating against were Drs. Penney and Collins. It has to be mentioned that all four are actually avid users of ultrasonography in their offices.



The 2019 CRUS Cadaver Injection course took place in Montreal at the Steinberg Simulation Centre.

Students and tutors who participated in the first basic course at McMaster University in 2011.

Other activities included ultrasound training that was embedded into fellowship trainings at several Canadian universities.

Finally, off-shore teaching requests in Saudi Arabia and Kuwait for CRUS-structured programs validated the high standards and quality of our Canadian ultrasound training program.

The Ultrasound Frequency is Gaining Depth – A Brief Timeline of Events

- **2014-15:** The Adoption of US teaching into the rheumatology core curriculum at several universities.
- **2016:** Research prizes were awarded by CRUS for research projects that employed point-of-care ultrasound as a component. Yearly competitive awards are continued by the CRUS research committee.
- **2017:** CRUS promotes the value of vascular ultrasound of the temporal vessels in GCA after a Canadian contingent returns from an intensive hands-on teaching program sponsored by Dr. Andreas Diamantopoulos in Kristiansand, Norway.
- **2018:** US Intervention Courses adopted as a post-CRA event in Ottawa, Vancouver and Montreal Simulation Centres.

The End of The Beginning – Focus is at The Royal College

From the beginning, there was debate as to the role of CRUS in the certification of competency of its trainees. Should we adopt the examination format currently in place from the American College of Rheumatology (ACR) and the European League Against Rheumatism (EULAR), or enlist an arms-length approach by recruiting the services of the Royal College of Canada?

The Royal College was in the process of granting diplomas in specialized fields of practice that did not warrant the formation of a

Members of the Canadian group visiting Jesi, Italy, in July 2009.

The first research prize given by CRUS to Dr. Lihi Eder in October 2016.

new specialty (*www.royalcollege.ca/rcsite/specialty-discipline-recognition/categories/discipline-recognition-areas-focused-competence-afc-programs-e*). We thought that this approach would be ideal, unique and would provide a much-needed validation that point-of-care ultrasound would be recognized within the scope of rheumatology practice. Candidates who complete the added training requirements and acquire the complementary skills and competencies would receive the added qualification of diplomate of the Royal College of Physicians and Surgeons of Canada (DRCPSC). This decision was to engage our patience in a process that is now over six years long.

The 6th Year of a Project in Progress at the Royal College of Canada

NMSKUS AFC Diploma in Canada

- In 2013, rheumatology considers an application for an MSK POCUS AFC Diploma, and is advised by the Committee on Specialties (COS) to partner with Emergency Medicine as they were applying for a similar AFC Diploma at the same time.
- Joint Application is submitted, after receiving support from Dr. Grant Stoneham, Chair of the Specialty Committee of Diagnostic Radiology. Application was rejected by the COS for a lack of common shared skills; disciplines are too disparate to be considered together.
- Consequences**:** A second application attempt is required, and, if rejected, a five-year waiting period (penalty) is required before any further applications can be received.
- Emergency Medicine proceeds and applies as an Acute Care POCUS (and is successful in 2018).
- Rheumatology considers re-applying as Ambulatory Care POCUS
- Rheumatology is advised to partner with other medical/surgical disciplines, and not go it alone, as the Royal College would not approve an ultrasound-related AFC for each subspecialty.
- Further delays are required to contact all disciplines and request their participation or letters of support (*i.e.* internal medicine, pediatrics, orthopedics, sports & exercise medicine, pain medicine, anaesthesiology, family practice). All support our application. Only physiatry and neurology agree to be active participants.
- Rheumatology and associated disciplines do not accept the suggested proposal to submit their application as **Ambulatory Care POCUS.** Rather, they amend the application to reflect all interested specialties that have a common shared interest in neuromuscular and musculoskeletal disorders, a unique pairing of related disciplines with closely overlapping areas of education, training, and competency requirements.
- Rheumatology (adult & pediatric) act as sponsoring disciplines and partner with other neuromuscular skeletal disciplines (neurology & physiatry) and apply as a neuromusculoskeletal ultrasound (NMSKUS) AFC Diploma discipline. Four separate competency training requirements are defined as four separate streams, with the potential for other related disciplines to join this AFC program at a later date.
- A robust and comprehensive CTR was developed for each of the four streams: adult rheumatology, pediatric rheumatology, physiatry, and neurology.
- Application is deferred due to Royal College Diagnostic Radiology wanting a review of the scope of practice as outlined in the submitted competency training requirements (CTR), and other elements in the application related to quality of care and archiving and peer review.
- Several teleconferences in 2016 and 2017 are held between the applicants' committee and Royal College representatives from Diagnostic Radiology to finalize application of CTR before a resubmission.

Part 1: Approval is achieved December 2017 when the COS accepts our NMSKUS POCUS AFC diploma application, including the CTR and letters of support.

Part 2: Approval is in play.

- April 2018: The COS recommends that our proposal proceeds to Part II, where the Office of Specialties (OSE), conducts national consultations with ministries of health, deans and post-graduate deans in each university, specialty committees of relevant disciplines, national specialty societies, and related medical organizations.
- Application is discussed but deferred, from formal review due to the Royal College request that the application be defined as point of care. Addendums are made to revise application. No changes are made to the existing CTR that was previously approved in part 1 of the application process. The AFC was always intended to be point-of-care evaluation by clinicians as an adjunctive clinical tool to answer diagnostic and clinical questions that can be assisted by US at point of care, so a change in the official nomenclature was accepted by the applicants.
- After the amendments are made for a POCUS-defined diploma, a second deferment occurs in Fall of 2018.
- Canadian Association of Radiologists & Royal College Diagnostic Radiology, and now the COS, object to the approved CTR that is considered to demand skills and competencies similar to diagnostic radiology but limited to the neuromusculoskeletal system, and now deemed to be inappropriate as a POCUS AFC Diploma.
- Application is deferred from further consideration by the Committee on Specialties while the stakeholders, the Canadian Association of Radiologists and Royal College Diagnostic Imaging enter into internal discussions (2018-19).
- A teleconference is then held between applicants, CAR and Royal College Diagnostic Radiology, and Royal College COS representatives on April 5, 2019.
- **Resolution:** Applicants agree to the concept of POCUS and agree to proceed with changes to the application.
- Revisions are undertaken to apply the concept of point-of-care US, amend the CTR from the previously approved version, and add more details on quality of care, documentation, archiving, and peer review.
- Ultrasound application skills set to be limited/binary/assist in bedside decision making.
- At this stage, the Royal College Committee on Specialties recommends that: the application is still active in part 2 phase, but deferred until amendments are completed to the satisfaction, and with the assistance and collaboration of Diagnostic Radiology at the Royal College and the Canadian Association of Radiologists.
- If our ammended application is approved by the COS, it will be considered for final approval by the Committee on Specialty Education (CSE). This advance will allow fellows additional opportunities to acquire national recognized credentials that will improve patient care.

Summary

Few practice-related advances have captured the imagination of rheumatology clinicians as the application of sonography to daily practice. This article outlines a ten-year history of learning, teaching and striving for accreditation to employ bedside practical ultrasound in daily practice in the Canadian medical landscape. The Royal College area of focused competence diploma discipline may ultimately support the growth of our specialty with national standards of excellence.

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CRUS President,
Montreal, Quebec

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Summary

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Dr. Rick Adachi – *Herbert A Fleisch ESCEO-IOF Medal*

Professor Jonathan D. Adachi has been awarded the prestigious Herbert A. Fleisch ESCEO-IOF Medal at the World Congress on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases. The Medal is named after the late Professor Herbert A. Fleisch, a renowned investigator whose ground-breaking work contributed to the development of the field of scientific knowledge about metabolic bone diseases and their treatment. It is awarded annually by the European Society for Clinical and Economic Aspects of Osteoporosis, Osteoarthritis & Musculoskeletal Diseases (ESCEO) and the International Osteoporosis Foundation (IOF) to a researcher who has made outstanding achievements in bone and osteoporosis research.

Dr. Adachi is a Professor of Medicine at McMaster University. He has been involved in clinical trials and epidemiologic research including the Canadian Institutes of Health Research (CIHR)-funded Canadian Multicentre Osteoporosis Study (CaMos) study examining risk factors for bone loss and establishing normal bone density values in men and women and Canadian fracture risk assessment tools. He has been involved with imaging research in osteoporosis and arthritis using a number of different imaging techniques. He attributes much of his success to his many students and colleagues with whom he has collaborated. Dr Adachi has over 500 peer-reviewed publications and is a respected leader in bone research in Canada and internationally.

Dr. Robert Rottapel – *Eaton Basic Science Researcher of the Year*

Dr. Robert Rottapel is a rheumatologist at St. Michael's Hospital and a senior scientist at the Princess Margaret Cancer Centre where he holds the Amgen Chair for Cancer Research. He is Professor of Medicine, Immunology and Medical Biophysics at the University of Toronto. He serves on the national executive of the Terry Fox Research Institute and is a program director at the Ontario Institute for Cancer Research.

Dr. Rottapel's laboratory focuses on signalling pathways regulating immune networks in arthritis, monogenic autoinflammatory disorders and the autoimmunity triggered by immune checkpoint inhibitors in cancer patients. He is a founding member of Northern Biologics, a Toronto-based biotechnology company developing novel antibody-based therapeutics in fibrosis and oncology.

Dr. Rottapel is an avid flutist and has served on the Board of Directors of the Toronto Symphony Orchestra, SoundStreams Canada and the Toronto Bach Festival.

The Eaton Basic Science Research of the Year is awarded to a member of the Department of Medicine (University of Toronto) who has demonstrated sustained excellence as a scientist and role model over several years.

AWARDS, APPOINTMENTS, AND ACCOLADES

The *CRAJ* would like to recognize the contributions of its readers to the medical field and their local communities. To have any such awards, appointments, or accolades announced in an upcoming issue, please send recipient names, pertinent details, and a brief account of these honours to *jyotip@sta.ca*. Picture submissions are greatly encouraged.

Palliative Care for the Rheumatologist: When Does the End Begin…And Why Does It Matter?

By Alexandra Saltman, B.A. (Hons), MD, FRCPC

How often, if ever, would you refer a patient with a life-limiting rheumatologic condition to specialized palliative care services?

Would you do so if your patient had uncontrolled symptoms; if he or she had spiritual, psychological or social distress stemming from their illness; or if he or she had a short prognosis, and required assistance with advance care planning?

How comfortable would you be in identifying patients in your practice who might benefit from a palliative approach to care? And how would you introduce this approach to your patient?

When we think of palliative care, we often think about care for a dying patient in the last days, weeks or months of life. But palliative care in 2019 has come to encompass much more than that limited definition. The so-called "third wave" of palliative care seeks to integrate a palliative approach to care alongside disease-specific treatment, as part of a continuum of care. This approach aims to improve quality of life for patients with life-limiting illnesses, through the prevention and relief of suffering, the control of symptoms, and the management of physical, psychosocial and spiritual distress.

Such an approach is supported by a growing body of evidence that demonstrates improved patient satisfaction with care, decreased symptom burden and, in some cases, better survival, when a palliative approach to care is integrated early in a patient's disease trajectory.[1,2,3,4,5,6,7]

The last several decades have brought major advances in the treatment of systemic rheumatic diseases that have led to reduced morbidity and mortality for many of our patients. However, a patient population remains – those with systemic vasculitis, systemic sclerosis, inflammatory myositis, and severe courses of systemic lupus erythematosus and rheumatoid arthritis – who still suffer from life-limiting diseases with high symptom burdens and, often, poor prognoses. Nonetheless, these patients hardly ever have access to palliative care, and there is little data on their palliative care needs.[8,9,10,11,12]

At the same time, recent advances in oncology have created a second population of patients at the intersection of these two fields. By "awakening the immune system," new targeted therapies to treat metastatic cancer – namely, immune checkpoint inhibitors – have led to the development of de novo autoimmune diseases, so called rheumatic immune-related adverse events, in about one third of patients. This phenomenon has created another population of patients with both rheumatologic and palliative care needs.

From my earliest clinical experiences, I gravitated toward caring for patients suffering from complex, chronic disease. I was drawn to the natural areas of overlap between rheumatology and palliative care—in their shared emphasis on pain and symptom management, quality-of-life interventions, longitudinal relationships with patients and families, and complex, chronic disease management. But, I encountered few, if any, opportunities for these patients to access palliative services during my training, notwithstanding that the nature of their illnesses and treatments often made symptom management, and end-of-life care planning, uniquely challenging for their treating physicians. And so, it was for these reasons that I set out to position myself to practice dually as a rheumatologist and a palliative care physician.

By completing advanced clinical training in both specialities, through the Royal College certified Rheumatology Subspecialty Program at the University of Toronto, followed by a University Health Network Clinical Fellowship in Palliative Medicine, I have set out to create a niche at the intersection of these two specialties.

To pilot this model of chronic, integrated, subspecialty palliative care in rheumatology, I have launched two new clinics at Mount Sinai Hospital in Toronto:

(1) **Advanced Pain and Symptom Management in Rheumatology Clinic,** focusing on complex symptom management, palliative planning and end-of-life care for patients diagnosed with complex,

Continued on page 29

A Snapshot of Access to Rheumatology Tests in Canada

By Dr. Shirley Lake, on behalf of the CRA Choosing Wisely sub-committee

Over the past several years, ordering certain medical tests and treatments has become more restricted. The Canadian Rheumatology Association (CRA) sent out a survey this spring to understand how this has impacted rheumatologists across the country. Thanks to the 132 respondents (approximately 22% of the membership), we have learned that there is a lot of variability in how these tests can be accessed both between and within the academic and community practice settings in different provinces. Furthermore, restrictions are often site-specific and don't apply to the province as a whole.

The anti-nuclear antibodies (ANA) test and anti-cyclic citrullinated peptide (CCP) test were identified as examples of this variation. ANA tests could be restricted in how frequently they could be ordered, anywhere from every month to every two years. One province had restrictions on ANA testing based on clinical criteria. Anti-CCP tests were restricted in many provinces, in that it was not accessible unless the patient paid for the test. In some provinces the test could only be ordered by a rheumatologist or other specialist.

An abridged version of the survey results for these two tests is shown below. The complete data table showing all provinces and territories can be found at *craj.ca*.

There were many interesting comments from the membership. One common theme was that some restrictions are appropriate, as certain tests were not evidence based such as bone scans for inflammatory arthritis. There were comments about the most effective means of decreasing inappropriate testing, whether education may be more effective than restriction, or allowing only specialists to order some tests, such as human leukocyte antigen B27 (HLA-B27) and anti-neutrophilic cytoplasmic antibodies (ANCA). Another comment was that, although there is inappropriate lab testing, it is not as high impact as inappropriate imaging or procedures such as magnetic resonance imaging (MRI) for knee osteoarthritis or arthroscopic surgery for osteoarthritic knees.

With increasing demands on health care, and an unsustainable rise in heath spending, the CRA should help guide the development of additional cost-effective strategies, while continuing to maintain the highest level of care for our patients. More evidence on the best strategies for ordering these tests may help standardize care across Canada to ensure the highest quality care that is effective, efficient, equitable, timely, safe and patient centred.

For complete access to the survey data on restricted tests (anti-nuclear antibodies (ANA), extractable nuclear antigen (ENA), erythrocyte sedimentation rate (ESR), vitamin D, anti-CCP, ANCA, aspartate aminotransferase (AST), HLA-B27, bone mineral density (BMD), arthroscopic knee debridement, hyaluronic acid injection, bone scans, MRI, and others) please visit *craj.ca*. We also welcome any updates or corrections to this information, as it is based on respondent knowledge/experience and may not fully reflect the current situation in a certain province or practice setting. These can be sent to *sranta@rheum.ca*.

ANA Test Restrictions (varies by site, as reported by individuals):

Test	Practice	NS	QC	ON	AB	BC
ANA	**University (U)**	No repeat < q3month	No repeat < 1month unless rheumatologist; < q3month	No repeat < 2yr; connective tissue disease panels screen for ANA +; some ENAs (just positive or negative)	Clinical criteria required at some centres; others report no restrictions	No restriction reported
	Community (C)	No restriction reported	No repeat <1yr	No restriction reported	No restriction reported	No repeat <1yr

No restriction reported: NL-U; NB-U & C; MB-U & C; SK-U & C; NU-C; No response: NL–C; PEI–U & C; NU-U; NT-U & C

Anti-CCP Test Restrictions (varies by site, as reported by individuals):

Test	Practice	NL	NS	ON	AB	BC
Anti-CCP	**University (U)**	Rheumatologists only	Rheumatologists only	Restricted to patients seen at university hospital-based clinic	Responses include 'patients pay if not ordered by rheumatologist or specialist' and 'no restriction'	Responses include 'patients pay' and 'covered'
	Community (C)	No response	Specialists only	Patients pay	Same as above for University	Responses include 'patients pay' and 'covered'

No restriction reported: NB-U & C; QC-U & C; MB-U & C; SK-U & C; BC-U & C; No response: NL-C; PEI-U & C; NU-U; NT-U & C

AB=Alberta; BC= British Columbia; MB=Manitoba; NB=New Brunswick; NL=NewfoundLand; NS=Nova Scotia; NT= Northwest Territories; NU=Nunavut; ON=Ontario; PEI=Prince Edward Island; QC=Quebec; SK=Saskatchewan

Update from Dr. Sylvie Ouellette in New Brunswick

Now that we are down to two full-time members, meetings in the Rheumatology Division at The Moncton Hospital are best described as dates. Dr. Peter Docherty has kindly popped out of retirement, two-to-three days per week, to help with the clinical load. We remain hopeful that we will be able to recruit a new full-time member, and would love to tell anyone who might be interested about what a great place to live, work, and raise a family Moncton can be.

Palliative Care for the Rheumatologist: When Does the End Begin…And Why Does It Matter?

(Continued from page 27)

chronic and life-limiting systemic rheumatic diseases; and

(2) Rheumatology and Immuno-Oncology Clinic, focusing on the management of patients with immune-related adverse events secondary to immune checkpoint inhibitor therapy for advanced malignancies, other immunotherapy-related autoimmune complications, and cancer-associated arthropathies.

I would welcome referrals to either clinic for an in-person consultation (or via telemedicine, if geographically distant and clinically appropriate), either faxed to 416-586-8766, to my attention, or emailed to *alexandra.saltman@sinaihealthsystem.ca.*

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Palliative Care Physician,
Princess Margaret Hospital
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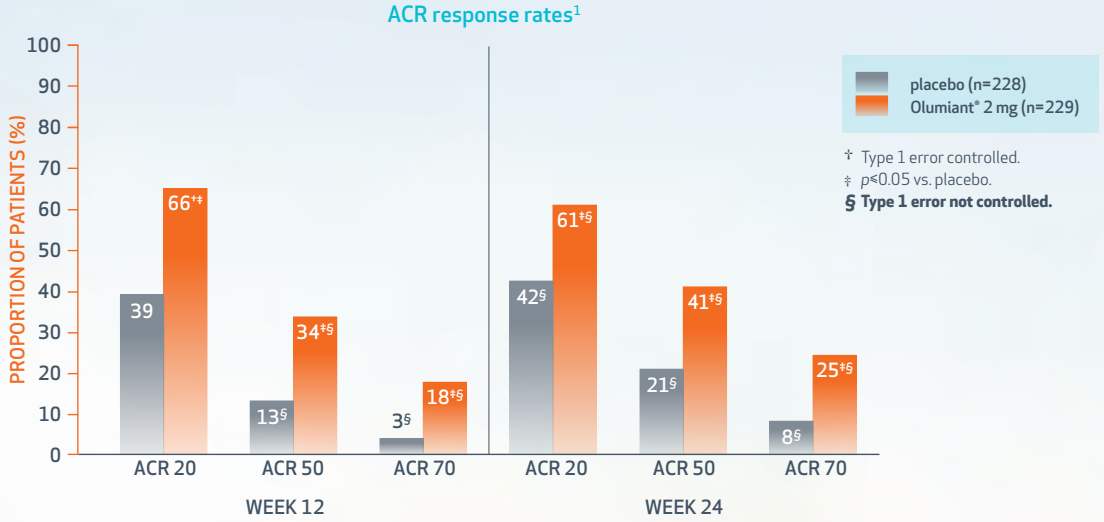
OLUMIANT®: A NEW OPTION IN THE MANAGEMENT OF RHEUMATOID ARTHRITIS (RA)[1]

In adults who inadequately responded to one or more conventional disease-modifying anti-rheumatic drugs (cDMARDs), Olumiant® demonstrated:[1]*

- Significant improvement in ACR 20 response rate at Week 12 vs. placebo: 66%† vs. 39% (95% CI: 17.6, 35.3; $p \leq 0.05$)[1]
- Improvements in ACR 20, 50 and 70 vs. placebo (secondary endpoints)[1]

ACR response rates[1]



† Type 1 error controlled.
‡ $p \leq 0.05$ vs. placebo.
§ Type 1 error not controlled.

Adapted from the Olumiant® Product Monograph[1]

- Olumiant® significantly improved mean change from baseline in HAQ-DI score vs. placebo at Week 24: -0.24† (95% CI: -0.35, -0.14; $p \leq 0.05$) (secondary endpoint)[1,2]

Indications and clinical use:

- Olumiant® (baricitinib), in combination with methotrexate (MTX), is indicated for reducing the signs and symptoms of moderate to severe rheumatoid arthritis (RA) in adult patients who have responded inadequately to one or more disease-modifying anti-rheumatic drugs (DMARDs)
- Olumiant® may be used as monotherapy in cases of intolerance to MTX
- Use of Olumiant® in combination with other Janus kinase (JAK) inhibitors, biologic DMARDs or potent immunosuppressants such as azathioprine and cyclosporine is not recommended
- Geriatrics (≥65 years of age): Use with caution
- Pediatrics (<18 years of age): Olumiant® should not be used in this patient population

Contraindications:

- Patients with known hypersensitivity to baricitinib or any of its components

Most serious warnings and precautions:

- **Serious infections:** Patients treated with Olumiant® are at 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 Olumiant® until the infection is controlled. Reported infections include: active tuberculosis – patients should be tested for latent tuberculosis before initiating Olumiant® and during therapy; invasive fungal infections including cryptococcosis and pneumocystosis; bacterial, viral and other infections due to opportunistic pathogens. Do not initiate treatment with Olumiant® in patients with active infections, including chronic or localized infection. Monitor closely for signs and symptoms of infection during and after treatment with Olumiant®
- **Malignancies:** Lymphoma and other malignancies have been observed in patients treated with Olumiant®. Consider the risks and benefits of Olumiant® prior to initiating treatment in patients with a known malignancy other than a successfully treated non-melanoma skin cancer, or when considering continuing Olumiant® in patients who develop a malignancy
- **Thrombosis:** An increased incidence of thrombosis, including deep venous thrombosis (DVT) and pulmonary embolism (PE), has been observed in patients treated with Olumiant®. Patients with symptoms of thrombosis should be promptly evaluated

Other relevant warnings and precautions:

- Use with caution in patients who may be at increased risk of gastrointestinal perforations
- Patients presenting with new-onset abdominal symptoms should be evaluated promptly for early identification of gastrointestinal perforation
- Evaluate liver enzymes before initiating Olumiant® and thereafter according to routine patient management. If increases in alanine transaminase (ALT) or aspartate transaminase (AST) are observed and drug-induced liver injury (DILI) is suspected, interrupt Olumiant® until resolved
- Olumiant® has not been studied in patients with severe hepatic impairment and is therefore not recommended
- Combined use of Olumiant® with potent immunosuppressants is not recommended
- Not recommended for use with live vaccines
- Avoid use of Olumiant® in patients with an active infection, including localized infections
- Closely monitor patients for the development of signs and symptoms of infection during and after treatment with Olumiant®
- Interrupt Olumiant® if a patient develops a serious infection, an opportunistic infection, or sepsis
- Use with caution in elderly and diabetic populations
- Use with caution in patients with a history of chronic lung disease
- Patients should be evaluated for latent or active tuberculosis infection prior to administration of Olumiant®; the product should not be given to patients with active tuberculosis
- If herpes zoster develops, Olumiant® treatment should be interrupted until the episode resolves
- Risk of increase in creatine phosphokinase (CPK) within one week of starting Olumiant®
- Avoid initiation, or interrupt Olumiant® if hemoglobin <80 g/L
- Avoid initiation, or interrupt Olumiant® if absolute lymphocyte count (ALC) <0.5 x 10^9 cells/L
- Avoid initiation, or interrupt Olumiant® if absolute neutrophil count (ANC) <1 x 10^9 cells/L
- Assessment of lipid parameters should be performed approximately 12 weeks following initiation of Olumiant® and as needed thereafter
- CPK levels should be checked in patients with symptoms of muscle weakness and/or muscle pain for evidence of rhabdomyolysis

olumiant®
(baricitinib) tablets

Convenient once-daily dosing[1]

Recommended dose: **2 mg once daily**, in combination with MTX

- May be used as monotherapy in cases of intolerance to MTX
- Can be taken any time of the day, with or without food
- Can be stored at room temperature (15°–30°C)

Each face of the tablet contains a recessed area[1]

Olumiant® 2 mg

Tablet is not shown actual size.

Bottle and cap designed with RA patients in mind

The Olumiant® bottle and cap have undergone independent testing and have been awarded the Ease-of-Use™ designation by the Arthritis Society.

Products with the Arthritis Foundation's Ease-of-Use™ commendation have been reviewed by independent experts and considered easy for people with arthritis to hold, use and interact with.[3]

Olumiant® is a selective and reversible inhibitor of Janus kinase (JAK)[1¶]

- Not recommended in moderate and severe renal impairment, including end-stage renal disease (ESRD)
- Special populations: Should not be used during pregnancy. Women of reproductive potential should take appropriate precautions to avoid becoming pregnant during treatment, and for at least 1 week after the final treatment. Breastfeeding is not recommended during Olumiant® treatment
- Monitoring and laboratory tests: Assess lipid parameters prior to starting Olumiant® therapy, approximately 12 weeks after initiation, and periodically thereafter. Liver enzyme tests are recommended. If drug-induced liver injury is suspected, interrupt therapy until this diagnosis has been excluded. Assess renal function prior to starting Olumiant® therapy, approximately 4–8 weeks after initiation, and periodically thereafter. Assess lymphocytes, neutrophils and hemoglobin count at baseline, approximately 4–8 weeks after initiation, and periodically thereafter

For more information:

Please consult the Product Monograph at http://pi.lilly.com/ca/olumiant-ca-pm.pdf for important information relating to adverse reactions, drug interactions and dosing that has not been discussed in this piece.

The Product Monograph is also available by calling 1-888-545-5972.

ACR = American College of Rheumatology; CI = confidence interval; HAQ-DI = Health Assessment Questionnaire-Disability Index.

* Phase 3, double-blind, 24-week study of 684 biologic DMARD-naïve patients with moderate to severe RA and inadequate response or intolerance to ≥1 cDMARDs. Patients were assigned 1:1:1 to placebo (n=228) or baricitinib 2 mg (n=229) or baricitinib 4 mg (n=227) once daily. The primary endpoint was American College of Rheumatology 20% response (ACR 20) at Week 12 for baricitinib 4 mg.[2] Baricitinib 4 mg is not an approved dose in Canada.[1]

¶ **Clinical significance unknown.**

References: 1. Olumiant® (baricitinib) Product Monograph, Eli Lilly Canada Inc., August 14, 2018. **2.** Dougados M, van der Heijde D, Chen Y-C, *et al*. Baricitinib in patients with inadequate response or intolerance to conventional synthetic DMARDs: results from the RA-BUILD study. *Ann Rheum Dis* 2017;76:88-95. **3.** Data on file. Eli Lilly Canada Inc.

olumiant®
(baricitinib) tablets

PAAB

MEMBER OF INNOVATIVE MEDICINES CANADA

PP-BA-CA-0069E

Lilly

XELJANZ: The first JAK inhibitor in rheumatoid arthritis and psoriatic arthritis[1]*

PrXELJANZ®
[tofacitinib citrate]

NOW INDICATED IN ACTIVE PSORIATIC ARTHRITIS[2,3]

CONVENIENT ORAL TWICE-DAILY DOSING[2]

The eXel™ support program can provide quick access to XELJANZ.
Enroll your patients by calling **1-855-XEL-EXEL (1-855-935-3935).**

RHEUMATOID ARTHRITIS

PrXELJANZ®/PrXELJANZ® XR (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/XELJANZ XR (tofacitinib) as monotherapy.

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

PSORIATIC ARTHRITIS

PrXELJANZ® (tofacitinib) in combination with methotrexate (MTX) or another conventional synthetic disease-modifying antirheumatic drug (DMARD), is indicated for reducing the signs and symptoms of psoriatic arthritis (PsA) in adult patients with active PsA when the response to previous DMARD therapy has been inadequate.

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

Consult the XELJANZ/XELJANZ XR Product Monograph at http://pfizer.ca/pm/en/XELJANZ.pdf for important information about:

- Contraindications in pregnant women, nursing women and patients with severe hepatic impairment.
- Most serious warnings and precautions regarding risk of serious infections and malignancies.
- Other relevant warnings and precautions regarding patients with pre-existing severe gastrointestinal narrowing that are administered XELJANZ XR, patients with risk of gastrointestinal perforation, risk of viral reactivation, risk of malignancies, lymphoproliferative disorder, and nonmelanoma skin cancer, risk of lymphopenia, neutropenia, anemia, and lipid elevations, patients with hepatic and/or renal impairment, caution in patients with a risk or history of interstitial lung disease (ILD), risk of infection and immunosuppression when co-administered with potent immunosuppressants, being up to date with all immunizations in accordance with current vaccination guidelines, live zoster vaccine, women of reproductive potential, pediatric and geriatric patients, the elderly and patients with diabetes, patients with a history of chronic lung disease, lymphocyte counts, Asian patients, increases in creatine kinase, decrease in heart rate and prolongation of the PR interval, and liver enzyme elevations.
- Conditions of clinical use, adverse reactions, drug interactions and dosing instructions.

The Product Monograph is also available through our medical department. Call 1-800-463-6001.

JAK = Janus kinase
* Comparative clinical significance is unknown

References:
1. Pfizer Inc. Data on file. 2018.
2. Pfizer Canada ULC. XELJANZ/XELJANZ XR Product Monograph. October 3, 2018.
3. Health Canada. XELJANZ PsA Notice of Compliance information.

PrXELJANZ®
[tofacitinib citrate]

PP-XEL-CAN-0342-EN