

The CRA's 2022 Emerging Investigator: Dr. Jessica Widdifield

You are a Scientist at the Sunnybrook Research Institute in the Holland Bone & Joint Research Program, and ICES, as well as an Assistant Professor at the Institute for Health Policy, Management and Evaluation (IHPE), where you also teach courses on introductory and advanced health services research methods in the Clinical Epidemiology and Health Services Research programs. You lead an innovative and successful research program, focused on outcomes and health services research in rheumatic and musculoskeletal diseases (RMDs). What's more, you already have over 60 publications providing real-world evidence to enhance patient care, patient outcomes, and health system efficiency and sustainability for RMDs across the care continuum. Can you tell us more about your research?



The overall objective of my research program is to contribute to knowledge to inform strategies for optimizing care and outcomes for patients with RMDs, and to strengthen health system capacity to optimally manage these conditions. My research takes a population health approach leveraging rich and diverse secondary data sources (health records) and my contributions have focused on four key areas of activities.

One area focuses on quantifying changes in the population-level burden of RMDs over time and health system capacity to meet growing patient demands for these patients. Within this area of research, I have also quantified changes in the rheumatology workforce over time, changes in the population-level and practice-level encounters with rheumatologists over time (i.e. patient volumes), geographic variation in the supply of and access to rheumatologists, and assessed differences between male and female rheumatologists in terms of clinical activity and remuneration.

My second research area focuses on evaluating patient outcomes, including outcomes of disease (such as mortality), outcomes of interventions (such as pharmacoepidemiological assessments), and outcomes of care — the latter of which I have a focused interest in demonstrating the value of early access to and retention in rheumatology care on improving outcomes.

My third area of research focuses on quality measurement, as it's important to monitor that care provided to patients with RMDs is safe, effective, timely, efficient (using resources to achieve the best possible value), equitable,

and patient-centered. Of these six domains of quality care, I prioritize evaluations on monitoring timeliness of care and treatment of inflammatory arthritis, as long wait times for rheumatology care are one of the strongest signals to demonstrate the lack of health system capacity to meet patient demands

My fourth area of research works in synergy with efforts distilled across the other three areas of activities, where I contribute to enhancing research capacity and advancing the science for using secondary data (both health administrative data and electronic medical records [EMRs]) for research and quality measurement activities. These secondary data

sources can play an important role in guiding population health management and evaluations of care and outcomes, but there are uncertainties surrounding the data quality (validity and reliability) as these data were not originally collected for research purposes. Therefore, the use of these data requires careful and ongoing evaluation.

It sounds like a lot, but I am fortunate to have a lot of great collaborators to tackle these areas with me.

Your research has made important contributions to advancing the understanding of rheumatology workforce changes, and the population-level burden of disease, health determinants, outcomes of care, healthcare delivery and quality of care for patients with RMDs. What do you foresee as changes to the Canadian rheumatology landscape in the next decade? Do you think the rheumatology manpower shortage will be solved? If so, how?

From a health human resources planning perspective, I am concerned that the issues adversely affecting the rheumatology workforce will only amplify with time. Considering that we already have a deficit of rheumatologists, taking into account Canada's ongoing rapid population growth from immigration and an aging population, and that the training of a rheumatologist is approximately a nine-year education process (including medical school), unless investments happen today to allow expansion of rheumatology training programs, in 10 years we will still be experiencing a deficit. However, the rheumatology community is resilient, so I do not want to sound too pessimistic. Collectively, if we prioritize efforts that invest in strategies to strengthen rheumatology workforce capacity, I have a more positive outlook. These efforts will need to focus



Dr. Widdifield receiving the CRA Distinguished Investigator Award during the virtual gala in February 2022.

on: 1) increasing recruitment of clinical full-time equivalent rheumatologists (e.g., increasing exposure to rheumatology in medical school, increasing rheumatology residency spots, ethically recruiting international medical graduates); 2) improving the regional distribution of rheumatology care across Canada; 3) enhancing retention of rheumatologists within the workforce; 4) promoting and enhancing workforce capacity with interdisciplinary healthcare providers (e.g., government, regional, and local funding supports to expand interdisciplinary models of care to support rheumatology practices); 5) funding research to provide data about how to more efficiently utilize the rheumatology workforce and to better plan for the future healthcare needs of Canada's population; and 6) supporting equity, diversity and inclusion in rheumatology (e.g., developing and implementing programs to enable all to thrive, rectifying gender-based inequities in pay schedules).

From a rheumatology research and practice perspective, I think environmental sustainability may take a more prominent role within the rheumatology landscape in the next decade. The health sector uses considerable energy; consumes large quantities of plastics, paper and other resources; and produces significant amounts of waste. It's increasingly recognized that we need to reduce the environmental impacts of the health sector, so that we do not compromise our ability to meet the needs of future generations. I think in the coming years, it will become much more commonplace to apply an environmental sustainability lens to every day practices. For example, researchers will increasingly embed environmental costs and benefits as an outcome measure or a dimension of quality. We are going to see standard metrics and research methods for assessing the environmental effects of health system activities. Clinical guidelines, and care practices will begin to incorporate environmental sustainability into clinical decision-making (e.g., encouraging the use of telemedicine for stable patients to reduce the carbon footprint of transportation, adopting "pharmEcovigilance" and sustainable use of pharmaceuticals to reduce environmental contamination such as proper disposal of leftover drugs, adoption of sustainable packaging for pharmaceutical products). We may even see granting agencies and funding reviewers (maybe even ethics review boards) scrutinize study protocols for ethically responsible practices (e.g., are all study visits necessary or could patient-reported outcomes be collected electronically?). Identifying and reducing administrative waste, and operational waste (such as unnecessary repeat testing/imaging and other redundancies/inefficiencies) will all be increasingly important during the next decade.

There is a saying that success is the sum of small efforts, repeated day in and day out. For whatever is on the horizon, I have no doubt that the rheumatology community will collectively pitch in to address the issues affecting the sustainability of the workforce, and also champion the environmental sustainability movement — whereby patients, caregivers, and researchers, see the world that surrounds us as an integral whole.

At this year's CRA Annual Scientific Meeting Emerging Investigator Address, you presented research findings on the pandemic's impact on patients and rheumatologists. What other areas of research are you currently working on now?

My attention is now focusing on the Rheumatology EMR database at ICES. Over the past few years, we have been aggregating EMR data from Ontario rheumatologists into a centralized database. There was a lot of administrative work to get this project off the ground, with privacy and legal matters to attend to, preparing the infrastructure to securely house the data, and finalizing the process for extracting and acquiring rheumatology EMR data into a central data repository. Once the EMR data arrives, it needs to be processed, de-identified, and data variables mapped across individual practices into a common data model/schema, with a data dictionary to reflect the data content and structure. Then detailed data quality assessments are undertaken to inform which research questions can be feasibly and accurately addressed using the data. Recruitment of rheumatologists to participate (in sharing a copy of their practice data) is being done in phases and expansion of participants is underway. This novel data source will provide tremendous opportunities for collaborative research activities with the larger rheumatology community to really harness the power of using EMR data for research and quality measurement and improvement activities.

What has been your proudest professional accomplishment to date?

It's difficult to single out my proudest moment, as different accomplishments have impacted me in different meaningful ways. Being awarded a Banting Postdoc Award brought me to tears, so that was definitely the most emotional accomplishment, as a CIHR peer review panel felt I was deserving to continue my training towards an independent research career. That gave me a much-needed confidence boost (at a time when I needed it the most). Receiving a Stars Career Development Award from the Arthritis Society was also an important milestone. Starting out as a new investigator can be overwhelming, constantly being pulled in different directions, as other internal and external forces may be directly or indirectly influencing research activities we undertake. The Stars Award helped me to prioritize my research program. And of course, I am deeply honoured to be the recipient of the 2022 CRA's Emerging Investigator Award. To be recognized by my peers for my contributions to rheumatic disease research in Canada is very special.

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