Thank you to the Ontario Rheumatology Association for the opportunity to attend the American College of Rheumatology meeting in Washington, DC.

My principal goal during this meeting was to learn about rheumatology workforce issues affecting other countries, to see if they face similar challenges to those affecting the canadian rheumatology workforce, and to determine whether there are any evidence-based strategies being employed in other countries to improve rheumatology recruitment that could be used in Ontario and in Canada.

The results from the 2015 ACR Workforce survey are now available, and data from this survey formed the bulk of the abstracts and presentations on this topic. Projections of workforce need up to 2030 in the US were derived from this study, and factors potentially affecting rheumatology supply were highlighted. Strategies for addressing workplace deficit were proposed based on this data however there were very few studies evaluating the utility of these strategies.

The 2015 ACR Workforce survey was sent to 3366 rheumatologists, of whom 1297 (38.5%) responded, and to 497 fellows-in-training of whom 464 (93.7%) responded. The modelling when projected forwards to 2030 predicts a 31% decline in full-time equivalent (FTE) rheumatologists, with a 138% increase in demand based on age and disease projections (Battaferano et al). The demographic factors affecting the decline in FTE physicians are female gender and millennial status (defined as being born from 1982-2004). In 2015, female physicians saw fewer patients than male physicians (2,249 patient visits per year per female physician, compared with 3,133 for male physicians), and made up 41% of the current workforce. By 2030, women are expected to comprise 59% of the workforce. Moreover, millennials currently make up 6% of the workforce, though will constitute 50-75% in 2030. There has been a reported 5% decrease per week in patient load for this group (Deal et al). Supply and demand considerations must also account for the difference between academic and non-academic physicians. While academic physicians work slightly more hours per week, they spend 50% less time seeing patients, and see half as many patients per week (Monrad et al). Retirement in the next 10 years is planned for 40% of non-academic physicians and 29% of academic physicians.

A deficit in supply of rheumatologists is projected to persist even if all available rheumatology training spots in the US are filled to 100% capacity per year until 2030. There are 113 programs with 215 potential graduates per year. Based on adjustments for millennials and female work patterns as above, as well as accounting for a predicted 20% of graduates who are foreign medical trainees and are planning to work abroad, this would lead to an equivalent of 107 FTE physicians per year. Approximately twice this number of FTE physicians are expected to retire within this time period (Bolster et al).

The US also notes a maldistribution of rheumatologists with the Northeast and mid-Atlantic regions having the most rheumatologists, and the Northwest, North Central, and South Central areas having the highest increase in population to physician ratio (Lawrence-Wolff et al).

The most common factors affecting choice of rheumatology as a specialty for fellows-in-training were intellectual interest, lifestyle/work hours, and the influence of clinical rotations. The least commonly stated reason was income potential (Hausman et al). The top two barriers to practice reported by physicians include reimbursement rates and requirements for electronic health records (Monrad et al).

One of the strategies planned for bridging the need gap is the use of nurse practitioners (NPs) and physician assistants (PAs). Thirty-two NPs and PAs responded to the survey seeking information about practice patterns (30% response rate). NPs reported working an average of 43 hours per week, and PAs 39 hours per week. Most hours were in clinical care (NPs 30 hours/week, PAs 27 hours/week) with NPs reporting 31 patients seen per week and PAs 47 patients

seen per week. Less than 18% of NP and PA's reported performing DEXA scan, ultrasound, or infusions. All PAs, and 72% of NPs, reported seeing follow-up patients independently. Twenty-seven percent of PAs and NPs are planning to retire in the next 10 years (Smith et al.). Another abstract described NP/PA responsibilities, with the top five being: performing patient education (98%), adjusting medication dosages (97%), conducting physical exams (96%), treating patients (96%), and starting patients on medications (94%). Over 90% felt very or somewhat comfortable diagnosing RA and a similar percentage prescribed DMARDs. Approximately 50% used accepted disease activity measures (DAS, CDAI, SDAI, and/or RAPID) and a similar percentage followed Treat-to-Target strategies (Brown et al.). Clinics that employ NPs and PAs appear to be effective in managing rheumatoid arthritis patients when compared to rheumatologist-only practices, with lower disease activity (OR 0.32 for high disease activity p=0.004). Note however that there was no difference in change in disease activity between groups, thus it is possible that the patients in the NP/PA clinics may have lower disease activity at baseline (Solomon et al.).

Another strategy suggested as a potential solution to workplace shortages is the use of electronic digital consultation (e-consult). The US Army instituted an e-consult system to assist remote providers, using a secure email with file upload attachments, and rheumatologists were among those providing consultation services. A retrospective analysis of the rheumatology e-consults was performed. Twenty-four rheumatology staff and fellows performed a total of 193 consults over 8 years. The average response time was 5.3 hours with 98% of the consults answered within 24 hours. Diagnoses including inflammatory arthritis, spondyloarthropathy, arthralgia, connective tissue disease, among others. The authors concluded that the program was successful in providing timely subspecialty care, and that a similar model may improve access to subspecialty care in underserviced or remote areas (Schmidt et al.)

Telecommunication may also play a role in increasing the number of training positions by allowing distance learning. A paediatric rheumatology tele-learning program was created for the Texas Tech University Health Sciences Centre and comprised a 6-lecture curriculum. The lectures were given via TeamViewer which streams live video and powerpoint. The residents could interact with the lecturer via text message using Poll Everywhere. Residents were surveyed for satisfaction over several measures, with mean response of 4.8 on a Likert scale ranging from 1-5. This may improve access for training in remote sites to increase potential rheumatology training positions (Shirley et al.).

It is also key to ensure continued interest in rheumatology to maximize recruitment. One study assessed the impact of a student-led rheumatology interest group on outcomes including number of students choosing a rheumatology elective, the number of rheumatology abstract submissions by medical students, and the number of medical student-rheumatologist manuscript submissions. All of these outcomes increased following the initiation of this interest group when the 6 months post-intervention was compared to the 6 months pre-intervention (Brady et al).

It is hopeful that in the future we will see further evidence of strategies to help manage workplace shortages that may be extrapolated to our situation in Ontario.

Thank you again for your support.
Dr. Kim Legault, MD, MSc, FRCPC
Assistant Professor, Division of Rheumatology, Department of Medicine
McMaster University

Battaferano D., et al. Abstract number 93
Bolster M., et al. Abstract number 1960

Brady et al. Abstract number 1142
Brown et al., Abstract number 2908
Deal C., et al. Abstract number 89
Housman et al., Abstract number 1140
Lawrence-Wolff et al. Abstract number 928
Monrad et al., Abstract number 99
Schmidt et al., Abstract number 103
Shirley et al., Abstract number 23986
Smith et al., Abstract number 2085
Solomon et al., Abstract number 1809