Supply and Services of Pediatric Rheumatologists in Ontario, Canada

To the Editor:

With the growth in demand for pediatric rheumatology services alongside a rapidly growing Canadian population, monitoring the delivery of pediatric rheumatology services is important to inform human resource planning.

We used a population-based approach to describe the annual supply of, and clinical services provided by, pediatric rheumatologists in Ontario, Canada, between 2010 and 2019. In Canada, there are approximately 55 pediatric rheumatologists, with only a few graduates entering the workforce each year. Ontario is Canada’s most populous province, with the largest pediatric rheumatology workforce in Canada. Most Ontario pediatric rheumatologists work in academic centers and are typically compensated through alternative payment agreements (salaried with the expectation to shadow bill so their physician services can be monitored). Nonacademic pediatric rheumatologists are fee-for-service and may include general pediatric services.

Ontario residents are covered by a universal public health insurance (the Ontario Health Insurance Plan [OHIP]), which includes rheumatology services. In this study, pediatric rheumatologists were ascertained using the ICES Physician Database, which is constructed and validated using the Corporate Provider Database, the Ontario Physician Human Resources Data Centre, and billing data. Pediatric rheumatologists were defined as physicians with dual specializations in rheumatology and pediatrics, or a specialization in pediatric rheumatology. Patients under pediatric rheumatology care were identified from the OHIP Claims Database, which includes health services and associated diagnosis codes. The use of the data in this study was authorized under Section 45 of Ontario’s Personal Health Information Protection Act, which does not require review by a research ethics board.

We evaluated the workforce by describing the annual number of pediatric rheumatologists per 100,000 children. Annual totals of the number of unique patients with at least 1 rheumatology encounter, the number of patient encounters, and the number of new outpatient encounters were determined. We evaluated the case mix of diagnosis codes over time and assessed the frequency of 4 diagnosis categories: inflammatory arthritis, other systemic autoimmune rheumatic diseases (SARDs), noninflammatory musculoskeletal disease, and rheumatology-related conditions. Remaining billing codes were categorized as miscellaneous.

A total of 15 pediatric rheumatologists were actively practicing in 2010, which increased to 27 by 2018. This corresponds to a workforce increase from 0.51 to 0.91 pediatric rheumatologists/100,000 children. Females comprised 47% of the workforce in 2010, compared to 41% in 2018.

The total number of patients seen by pediatric rheumatologists increased over time (9688 patients in 2010, compared to 13,811 patients in 2018 [42.56% increase]). The annual total number of patient visits (new and repeat encounters) increased from 19,462 to 32,670 visits during the study period. From 2013 onward, the annual patient visit rate varied from 10.25 to 11.01/1000 children. Equal proportions of male and female patients were seen, with the highest proportion of patients between 1 and 5 years old. Inflammatory arthritis and other SARD diagnosis codes reflected one-third of all diagnosis codes. Inflammatory arthritis: rheumatoid arthritis (714), seronegative spondyloarthropathies (721), ankylosing spondylitis (720). Other systemic autoimmune rheumatic diseases: disseminated lupus erythematosus, generalized scleroderma, dermatomyositis, polymyositis (710), other disorders of arteries (vasculitis; 447), polyarteritis nodosa (446), sarcoidosis (135). Rheumatology-related conditions: uveitis (379), Raynaud disease (443), iritis (364), inflammatory bowel diseases (555). Noninflammatory musculoskeletal conditions: joint pain/arthralgia (781), other diseases of the musculoskeletal system or connective tissue (739), osteomyelitis (730), scoliosis (737), noninflammatory arthritis (715), trauma arthritis (716), tenosynovitis (727). Miscellaneous or no diagnosis rendered: remaining diagnosis codes, not listed above.
codes, and this was similar over time (Figure 2). Over 10,000 annual patient visits were generated from shadow billing claims, providing reassurance that pediatric rheumatologists are shadow billing for services.

Our study provided a longitudinal evaluation of the pediatric rheumatology workforce and the use of pediatric rheumatology services in Ontario over the past decade. Overall, the supply of pediatric rheumatologists has increased. In 2019, it was estimated that the total number of clinical full-time equivalents in Ontario was only 8.8 pediatric rheumatologists, which (as expected) is less than our reported physician head count. Pediatric rheumatology care in Canada predominantly occurs within academic settings in urban centers, where rheumatologists have competing academic interests and commitments. A limitation of our study was that we were not able to determine the exact percentage of time devoted for clinical care. We also recognize that some patients with pediatric rheumatic diseases are managed by adult specialists, particularly in areas where the supply of pediatric rheumatologists is limited.

Clinical service trends revealed that annual total and new encounter rates increased over time. The total patient encounter rates increased most notably over time, reflecting the increase in follow-up encounters and suggesting that patients are increasingly requiring frequent monitoring.

The evaluation of diagnosis codes from claims data that are specific to rheumatic diseases was fairly consistent. A large proportion of diagnosis codes were generated from shadow billing claims, and this remains consistent with how pediatric rheumatology care is delivered in Ontario. The large proportion of miscellaneous codes may be driven by rheumatologic diagnoses that do not have specific billing codes, or from nonacademic rheumatologists with scopes that include nonrheumatology services.

In conclusion, the Ontario pediatric rheumatology workforce supply and clinical services have been increasing gradually over the past decade, but further research is required to determine if the current clinical care capacity meets care demands.

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REFERENCES


