

ORIGINAL ARTICLE

Pediatric rheumatology consultant workforce in Australia and New Zealand: the current state of play and challenges for the future

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Abstract

Aim: There have been no formal assessments of current levels of the pediatric rheumatology workforce in Australia and New Zealand. Despite this it is felt that we fall well behind international guidelines placing children and adolescents with rheumatic diseases at risk of suboptimal care. Overcoming this shortfall in specialist pediatric rheumatology care requires documentation and recognition of the shortfall and a commitment from the health system to support improvements to supplement the current specialist workforce. The purpose of this survey was to assess the current state of play of the pediatric rheumatology workforce in Australia and New Zealand.

Methods: The Australian Paediatric Rheumatology Group (APRG) conducted a survey, which examined the current pediatric rheumatology workforce in Australia and New Zealand. The survey was sent via email link to a survey hosted by Zoomerang™ to 49 physicians known to treat patients with pediatric rheumatic diseases and they were asked to forward the survey to any others who they knew saw children with rheumatic disease.

Results: Currently there is a shortfall in the pediatric rheumatology workforce of 68% based on minimum requirements and a shortfall of 225% based on an ideal scenario.

Conclusion: Currently in Australia and New Zealand we fail to provide the level of care to children with pediatric rheumatic diseases comparable to other developed health economies worldwide. The current deficiency requires an increase in resource allocation to clinical service and speciality training to overcome this disparity and ensure children in Australia and New Zealand receive internationally recognized standards of care.

Key words: paediatric rheumatology, workforce, australia, new zealand.

INTRODUCTION

Juvenile idiopathic arthritis (JIA) affects at least 5000 children in Australia and half of these children will continue to have arthritis into adulthood.¹ There are 30 000 Australian adults who developed JIA in childhood and The Australian Institute of Health and Wel-

fare (AIHW) reported that one-third of these adults suffer severe disability,² highlighting the long-term burden of this disease to both individuals and the community.

Pediatric rheumatologists have specific expertise in the management of children and adolescents suffering from all forms of autoimmune connective tissue diseases, including systemic lupus erythematosus, juvenile dermatomyositis, systemic sclerosis and systemic vasculitis, along with other spinal and soft tissue disorders, metabolic bone disorders and chronic musculoskeletal

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pain syndromes.³ In conjunction with JIA these conditions represent an estimated population of more than 7000 Australian children with rheumatic disease requiring specialist care.

Dedicated pediatric rheumatology speciality care has led to significant advances in the quality of care for patients suffering from these conditions. Multidisciplinary team (MDT) pediatric rheumatology services have been established internationally and have had a positive impact for these patients with improved outcomes.^{4–6} A MDT approach is now the accepted standard of care for this patient group internationally, with guidelines recommending at least one pediatric rheumatologist and MDT for every 200 000 children to provide a comprehensive tertiary service, or 400 000 for the provision of clinical care only.^{7,8}

Until now there has been no formal assessment of the existing levels of workforce in Australia and New Zealand. Despite this it is felt that Australia and New Zealand fall behind international guidelines, placing children and adolescents with rheumatic diseases at risk of suboptimal care. Furthermore, the changing management paradigm for childhood rheumatic diseases, aiming for tight disease control, has resulted in the increasing and aggressive early use of immunosuppressive agents and biologic drugs for JIA which can only be prescribed by pediatric rheumatologists, which places additional demands on services.

METHODS

The Australian Paediatric Rheumatology Group (APRG) conducted a cross sectional study which was sent via email link to a survey hosted by Zoomerang™ to 49 physicians known to treat patients with pediatric rheumatic diseases and they were asked to forward the survey to any others who they knew saw children with rheumatic diseases. No reminders were sent to the recipients of the questionnaire and the survey was closed 4 weeks after the initial email was sent in August 2012.

Respondents were asked to provide their demographic details and their area of specialty training; they were asked to quantify the amount of time spent in pediatric rheumatology practice and the setting of this practice, whether it was in public or private practice. They were also asked to detail the proportion of time spent in non-clinical activities in pediatric rheumatology, such as education, research and administration, along with the availability of MDT services for their patients.

Analysis was completed using the collation software provided by the Zoomerang interface and workforce predictions obtained from modelling that was based on a number of assumptions, including: that pediatric rheumatologists obtain their specialist qualification between the ages of 30 and 32; the average age at retirement is 68 years, suggesting a 36–38 year career; and a service requirement of one full-time pediatric rheumatologist for every 400 000 people under the age of 16 for the provision of basic clinical care and to every 200 000 people under 16 years for ideal service provision.^{7,8} Population forecasts were obtained from Table B of *ABS 3222.0 Population Projections* which is the 'medium' scenario for population growth in Australia and the median scenario in *Statistics New Zealand National Population Projections 2011 (base)- 2061*. Historical growth in the pediatric rheumatology workforce was calculated using the data from the survey using the assumptions above and was included in calculations of future workforce shortfalls for the analysis.

RESULTS

Thirty-one responses were received, representing a response rate of 63%. All of the responses were from individuals included in the initial email notification. Of the 15 certified pediatric rheumatologists known to be practicing in Australia and New Zealand, 14 (93%) responded. Thirty respondents completed the survey in its entirety, while one did not complete details of proportions of time spent in each practice setting. This incomplete response was received from an individual who spent less than 5 h/week in pediatric rheumatology practice so is unlikely to have significantly affected the overall results. Those that did not respond to the survey were generally pediatricians, adult rheumatologists and immunologists who were known to manage some pediatric rheumatology patients but not as a large proportion of their practice.

Twenty-seven (87%) respondents were from Australia and four were from New Zealand. Two-thirds of the respondents (20) were male. Fourteen (45%) were pediatric rheumatologists, 14 (45%) were adult rheumatologists, two were immunologists, one considered themselves as both an adult and pediatric rheumatologist and one listed themselves as a pain physician.

As seen in Figure 1, 47% (14/30) of respondents spent 5 or fewer hours per week in pediatric rheumatology practice, three spent 6–10 h, one spent 10–15 h, four 16–20 h, two 21–30 h and only five respondents worked 40 or more hours per week in pediatric rheuma-

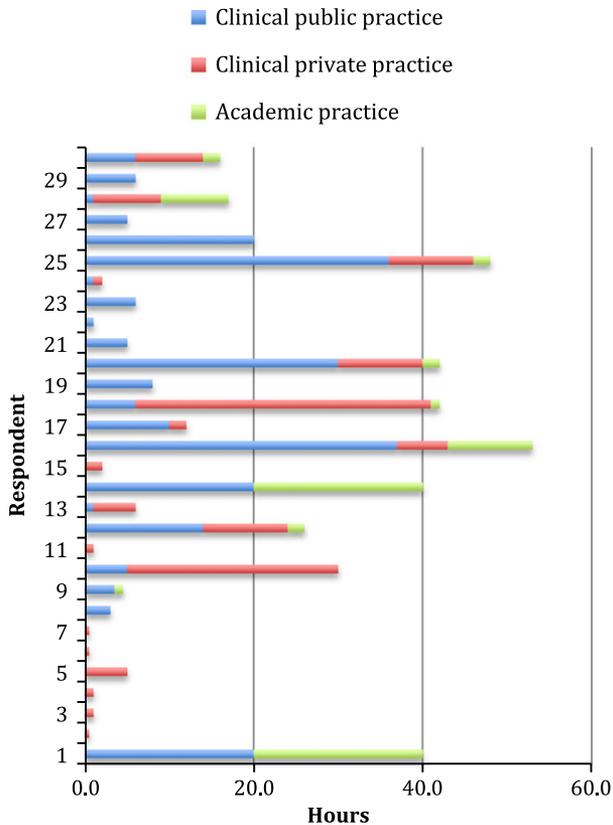


Figure 1 Average hours spent in the different forms of pediatric rheumatology practice per week by clinicians involved in pediatric rheumatology service provision in Australia and New Zealand.

tology and were considered full-time pediatric rheumatologists.

The mean number of hours per week spent in any form of pediatric rheumatology practice was 14.1 h (SD 16.2, range 0.5–53; total 426); for clinical public practice it was 8.2 h (SD 10.8; range 0–37; total 245); for clinical private practice it was 4.5 h (SD 7.9; range 0–35; total 132) and for academic practice including research, education and professional development, it was 2.4 h (SD 5.3, range 0–10; total 68). Thus 35% (132/377) of all clinical time was spent in private practice and 16% (68/426) of all paediatric rheumatology time was spent in academic practice.

As seen in Table 1, a majority of clinician time was spent on clinical care with 76.7% spending more than half of their pediatric rheumatology time in patient care and 60.0% spending more than three-quarters in patient care. Only small proportions of time were spent in teaching, research and administration, with 57%,

60% and 47% of respondents spending less than 10% of their pediatric rheumatology time in these areas, respectively.

Only four respondents (all from the same large tertiary institution) reported regular involvement in organized regular pediatric rheumatology continuing medical education at least once a month. Most others obtained their ongoing education from clinical contact with patients, reading journals and mixed adult and pediatric rheumatology meetings. One respondent who was an adult rheumatologist reported no continuing education in pediatric rheumatology.

The 14 respondents with specific pediatric rheumatology qualifications and one other an adult rheumatologist who reported spending more than 10 h/week in pediatric rheumatology practice were considered to be ‘pediatric rheumatologists’ and together they provided 90% (385/426) of all workforce as measured by hours spent in pediatric rheumatology practice. This cohort spent one-third of their pediatric rheumatology clinical care hours in private practice (114/338); the remainder was in public practice. Seventeen percent of their time was spent in academic practice and as a group they participated in 99% of all academic practice reported in the survey and this totalled 67 h/week. All of these 15 respondents considered to be pediatric rheumatologists were based in capital cities. Seventy-three percent (11/15) of the remainder of respondents worked outside capital cities.

Figure 2 shows the current workforce of ‘pediatric rheumatologists’ and all those seeing pediatric rheumatology patients plotted against the natural attrition of this existing workforce, and also projections of the minimum required workforce based on accepted figures (1 : 400 000 population <16 years of age) to cover clinical care only and the ideal workforce considered adequate to provide for all the expected functions of a tertiary subspecialty service, including clinical care, education, research and advocacy. (1 : 200 000 population <16 years of age). These figures are plotted from the present day through until 2047, where a clinician is considered as a full time equivalent (FTE) when working 40 h/week in pediatric rheumatology practice.

From Figure 2, currently there is a shortfall in pediatric rheumatology FTEs of 68% (8.6 vs. 14) based on minimum requirements and a shortfall of 225% (8.6 vs. 27) based on an ideal scenario.

When asked whether MDT care was easily available for their patients, only 57.1% of all respondents (16/28) and 60% of pediatric rheumatologists (9/15) responded in the affirmative.

Table 1 Proportion of time spent in direct patient care and other pediatric rheumatology activities by clinicians involved in pediatric rheumatology service provision in Australia and New Zealand

	<10%	10–25%	26–50%	51–75%	76–90%	>90%	N/A
Patient care (<i>n</i>)	16.7% (5)	0.0% (0)	3.3% (1)	16.7% (5)	26.7% (8)	33.3% (10)	3.3% (1)
Education (<i>n</i>)	56.7% (17)	26.7% (8)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	16.7% (5)
Research (<i>n</i>)	60.0% (18)	6.7% (2)	6.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	26.7% (8)
Administration (<i>n</i>)	46.7% (14)	23.3% (7)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	30.0% (9)
Other (<i>n</i>)	66.7% (20)	6.7% (2)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	26.7% (8)

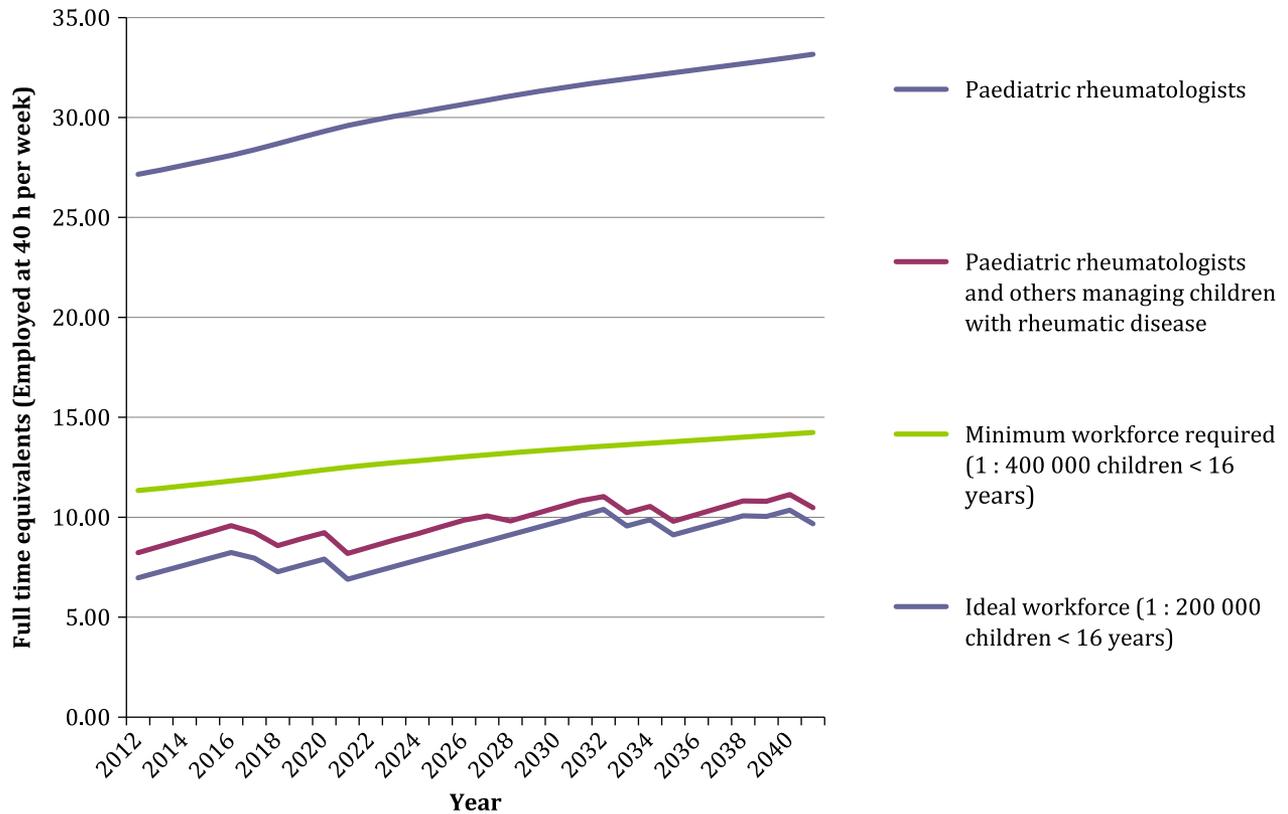


Figure 2 Pediatric rheumatologist workforce in Australia and New Zealand expressed in full-time equivalents (FTE) accounting for natural attrition and projected growth under current circumstances compared to the recommended workforce for the period 2012–2047. Workforce predictions assumed that pediatric rheumatologists obtain their specialist qualification between the ages of 30 and 32; the average age at retirement is 68 years. Population were forecasts derived from Table B of *ABS 3222.0 Population Projections* which is the ‘medium’ scenario for population growth in Australia and the median scenario in *Statistics New Zealand National Population Projections 2011 (base)- 2061*. Natural growth in the pediatric rheumatology workforce over the past two decades was calculated using the data from the survey and the assumptions above and was found to be approximately 0.3 FTE per annum and this expected growth was included in calculations of future workforce shortfalls for the analysis.

DISCUSSION

As developed health economies, Australia and New Zealand should aim to provide a standard of care in pediatric rheumatology equivalent to international guidelines^{9,10} and as provided by similar economies around the world. The results of this survey show that

pediatric rheumatology services in Australia and New Zealand fall well behind accepted international benchmarks and that there is a significant shortfall of pediatric rheumatologists in Australia and New Zealand of 68–225%. Furthermore, more than 40% of children do not have easy access to multidisciplinary team care which is essential in the care of these patients.^{4–6}

Comparable developed health economies such as the UK and USA have documented workforce standards for pediatric rheumatology. The National Health Service (NHS) UK stipulates that 'one consultant pediatric rheumatologist, two specialist nurses and one physiotherapist and one occupational therapist' are required per 200 000 children to provide a comprehensive service.⁷ Unfortunately no data are available to determine whether this standard is met in that geography. In the USA, a report to Congress in 2007 by Duke reported that there were fewer than 300 pediatric rheumatologists servicing the population of around 300 million people, equating to a ratio of almost one pediatric rheumatologist per 250 000 children, but based on an assessment of service needs, including geographical considerations, the authors of the report felt that there should be a further 30% increase in pediatric rheumatologist workforce in the USA.⁸

Thus in Australia and New Zealand a minimum of 14 full-time pediatric rheumatologists with MDT support is required to provide clinical care to our population. This ratio does not include resources to support the other essential roles of the pediatric rheumatology team in education, training, advocacy, research and administration, all vital for maintaining a high standard of clinical care on an ongoing basis. As there are seven tertiary pediatric rheumatology hospital services in the region, each of which would require three consultants to provide safe and sustainable around the clock on-call services, more than 20 full-time pediatric rheumatologists with MDT would be necessary for clinical care alone.

The 15 clinicians considered to be 'pediatric rheumatologists' provided 90% of pediatric rheumatology services of all sorts, totalling 385 h/week or equating to 9.6 full-time equivalents. This suggests that many of these individuals were not working within the specialty in their full capacity. Unfortunately one shortfall of this survey is that it did not ask where physicians spent their non-rheumatology time. Nonetheless, there may be a few lifestyle and practical issues that have influenced this pattern. Half of the workforce in question was provided by females aged <45 years or >60 years, a demographic which has been shown to work 20–25% fewer hours than male counterparts in pediatric practice at any age¹¹ and thus it is possible to speculate that this contributes to the relative shortfall in the workforce. Furthermore, as there are very few funded public hospital rheumatology positions in Australia and New Zealand and a practice caring for patients with relatively rare chronic illness may take time to build, anecdotally there has been a tendency for pediatric rheumatologists

to take up roles in other areas, such as general pediatrics, to establish themselves in practice. Thus there may be capacity within the existing workforce to expand their roles and cover some of the shortfall but this would depend on numerous factors, including clinician preference and resources to fund hospital appointments or support private practice.

It has been shown that Australia has the greatest delay from symptom onset to diagnosis of JIA, presumably due to a lack in the education of non-rheumatology health professionals about pediatric rheumatology diseases.¹² The most effective intervention would be education of general medical staff to improve recognition of rheumatic disease and reduce delays in diagnosis. Thus the value of non-clinical time for education along with research and advocacy must not be discounted in any estimates of service requirements and would increase the requirement significantly to 27 full-time equivalent pediatric rheumatologists with MDT.

Australia and New Zealand will need to train one pediatric rheumatologist per year over the next 34 years to achieve ideal staffing levels by 2047 or one every alternate year to achieve minimum staffing levels by 2047. A rate of two every year for the next 20 would be required to achieve these aims by 2030, or three to four per year to achieve the aim of adequate staffing by 2020.

At present some of this service shortfall is being met by non-pediatric rheumatologists, including adult rheumatologists, immunologists and other interested individuals, but it is clear that a significant proportion of this group spend a minority of their time in pediatric rheumatology practice. It is likely that this time commitment is insufficient to maintain clinical skills at the advanced level expected of a tertiary subspecialty service. Nor do they consistently participate in formal continued medical education in the area to ensure the ongoing provision of best practice care. A majority of care from this group is provided in private practice and most often in rural and remote areas. Studies looking at this group of non-pediatric rheumatology providers in the UK and USA have highlighted the ongoing need for the involvement of adult trained physicians in the management of pediatric rheumatic diseases, often as a result of geographical isolation, workforce shortfalls and also in adolescent patients.^{13,14} They conclude that there must be provisions to ensure that these practitioners receive adequate training in pediatric rheumatology and work within connected networks to ensure that patients obtain adequate care. As only two-thirds of the Australian population live in capital cities¹⁵ and a

majority of the non-pediatric rheumatology workforce mapped in this survey were practicing outside capital cities, models utilizing outreach visits and telehealth already well established for patients living in remote areas for other chronic diseases^{16,17} could also be adopted in pediatric rheumatology.

Currently there are only two sites in Australia and one in New Zealand accredited for pediatric rheumatology training and there is no guaranteed funding for fellows, which will make it very difficult to overcome the shortfall in expertise into the future. Currently the Roal Australasian College of Physicians oversees pediatric rheumatology training in Australia and New Zealand and core training is limited to public hospital tertiary referral sites with sufficient consultant staff supervision and teaching. Given the limited workforce, it is impossible for most tertiary sites in Australia to meet these standards. There are mechanisms to support training in private practice settings, such as the Extended Specialist Training Program (ESTP), which may need to be explored in the future, but in order for private practice sites to be accredited, they will still require an increased workforce as training and supervision in private practice will still require additional clinician time, which is not available at present.

This is the first survey of the pediatric rheumatology consultant workforce in Australia and New Zealand. Its strength lies in the high response rate from clinicians considered to be pediatric rheumatologists.^{15,16} There was a less robust response rate from others known to manage pediatric rheumatic diseases, yet of this group those that did respond reported that they managed relatively small numbers of patients and spent little time in the field. A better response rate from non-pediatric rheumatologists may have provided a more complete picture. Also the survey did not ask respondents to outline where they spent their non-pediatric rheumatology time, meaning that it is not possible to calculate the participation rate and what additional time could be redirected to pediatric rheumatology from other areas of practice.

CONCLUSION

Patient outcomes are improved by specialist MDT care being available to all patients with pediatric rheumatic diseases. As expectations of disease control and outcome become greater and treatments more complex, difficulties will arise with treatment of patients by non-specialists who may not be able to offer all of the management modalities pediatric patients require. It is likely

that patient expectations will follow and in the future patients and families will be increasingly unhappy to receive treatment from non-specialists.

Currently in Australia and New Zealand we fail to provide patients with pediatric rheumatic diseases the access to MDT care considered standard in comparable developed health economies. Overcoming the shortfall uncovered by this survey in trained pediatric rheumatologists to participate in MDT care will require an increase in resource allocation to clinical services to allow the existing workforce to extend their role in the field and speciality training to increase numbers of trained specialists. Additionally, the development of clinical networks, education and outreach to support non-pediatric rheumatologists who will continue to be called on to manage pediatric rheumatic diseases, particularly in regional and remote areas, needs to be recognized.

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