Editorial

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The Growing Problem of Radiologist Shortages: Australia and New Zealand's Perspective

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Several factors are responsible for the growing problem of radiologist shortages worldwide. The increasing demand for imaging studies, paired with a global aging population and clinician burnout, exacerbates the issue. Australia and Aotearoa New Zealand are no exception to this trend, and the aging population of both countries is creating a challenging environment for radiology service providers. Paired with the pressures of an increasingly complex clinical workload, there is a demonstrative need for more radiologists to meet growing healthcare demands.

Australia's healthcare system is known as Medicare and is funded by the Australian public through taxes. However, Medicare did not adjust its reimbursement rates for inflation until 2020, when indexation was reintroduced. This stagnation of fees has meant that Medicare has not grown with the increase in volume or the need for increased compensation for costs. Aotearoa New Zealand is facing similar challenges, where resources in the public sector have not kept up with the need for diagnostic imaging exacerbated by the COVID-19 pandemic, and "population growth has exceeded the ability of the current radiology services to cope with the demand" [1].

According to the latest quarterly Medicare data update provided by the Australian Government, diagnostic imaging services in Australia demonstrated robust growth, with a remarkable year-on-year increase of 11.3% during January-March 2023, compared to the same period in the previous year. Similarly, Medicare benefits increased by 13.2% annually during the same period [2]. This rapid growth indicates an increased demand for diagnostic imaging services in Australia (Fig. 1).

Similar growth can be observed across modalities, particularly magnetic resonance imaging (MRI) and computed tomography (CT), in the January-March 2023 quarter. Overall, the number of MRI services provided during this period increased by 10.2%, while CT services saw a significant increase of 15.5% compared to the same quarter of the previous year. These figures clearly indicate a growth in diagnostic imaging requests for MRI and CT, implying a corresponding increase in the number of radiologists required to provide these services.

According to the World Health Organization, the proportion of the world's population aged over 60 years will nearly double from 12 to 22% between 2015 and 2050 [3]. All countries will face similar challenges in ensuring healthcare systems are equipped to deal with demographic shifts. As the population ages, the demand for diagnostic imaging will inevitably grow at a rate that outpaces workforce growth. The increase in chronic disease, cancer, and cardiac disease that coincides with an aging population, along with the rise in conditions such as Alzheimer's disease, dementia, and arthritis, requiring diagnostic imaging, will likely stretch any healthcare system.

The burden of cancer incidence on the healthcare system should not be understated, particularly as the population ages. According to data from the Australian Institute of Health and Welfare (AIHW) and Australian Bureau of Statistics (ABS) data, the Australian population is projected

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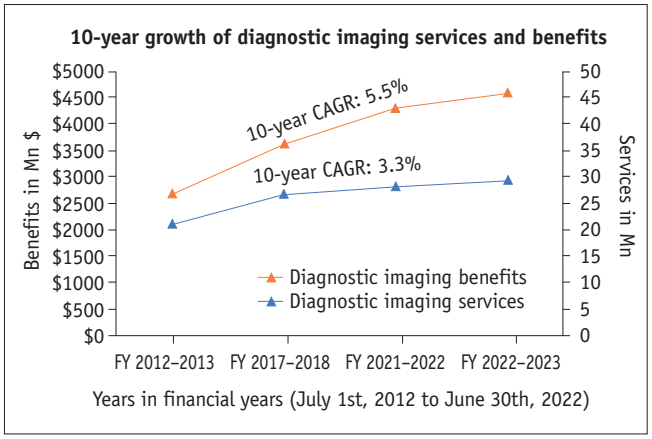

Fig. 1. Growth of Medicare. Growth of Medicare diagnostic imaging services and benefits provided from FY 2012–2013 to FY 2022–2023. FY = financial year, CAGR = Compound Annual Growth Rate

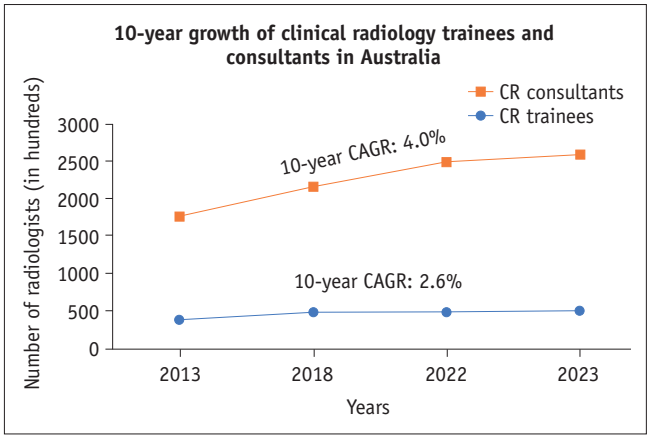

Fig. 2. Specialist workforce growth. 10-year growth of clinical radiology trainees and consultants in Australia. CAGR = Compound Annual Growth Rate, CR = clinical radiologists

to increase by 15% (equating to approximately 4 million people) between 2021 and 2031, while cancer cases are estimated to increase by approximately 22% in this time. It is estimated that 185000 cancer cases will be diagnosed in Australia by 2031, with a total of 1.7 million cases diagnosed between 2022 and 2031 [4]. In 2022 alone, approximately 162000 new cancer cases were diagnosed in Australia, averaging over 440 cases per day.

A significant challenge faced by the diagnostic imaging sector in Australia is the maldistribution of clinical radiologists across metropolitan, regional, and rural areas. In 2020, there were 2350 full-time clinical radiologists in Australia, equating to 91.5% of clinical radiologists per million Australian individuals. However, while 70% of the Australian population resides in metropolitan areas, 87% of the radiology workforce live in these areas [5].

Radiologist shortages are also found in Aotearoa New Zealand, following similar trends to Australia and the world. The clinical radiology workforce increased by 8% between 2016 and 2020; as of 2020, there were 449 practicing clinical radiologists in New Zealand [6].

Despite these challenges, radiology remains an appealing profession and there are positive aspects to be taken from workforce growth. There has been consistent growth in the total number of radiology consultants in Australia and Aotearoa New Zealand, over the past 5 years, with a Compound Annual Growth Rate (CAGR) of 3.5%, increasing from 2599 in 2018 to 3094 consultants in 2023. Similar growth was observed in the total number of radiology trainees in Australia and New Zealand, rising from 586 in 2018 to 632 in 2023, with a positive CAGR growth rate of 1.5%. These numbers include all active Clinical Radiology members working full- and part-time as of the end of June each year, as per the Royal Australian and New Zealand College of Radiologists (RANZCR) Customer Relationship Management data. This increase in consultants may indicate the rising demand for radiology services across both countries, driven by factors such as population growth, advancements in medical technology, and evolving healthcare needs.

However, while the number of consultants across Australia steadily increased, with a 10-year CAGR of 4.0%, the number of trainees did not increase at the same rate, with a 10-year CAGR of 2.6% (Fig. 2). This demonstrates the need for significant investment in training new radiologists to ensure a robust workforce in the future.

Along with an aging population, workforce demographics present issues of their own. Stress and burnout from COVID-19 have affected the clinical radiology workforce, with some clinicians opting to retire early or reduce their workload to ensure a healthier work-life balance. This attrition is likely to increase pressure on the already stretched workforce, as they struggle to keep up with the growing demand.

While the radiology workforce faces a significant number of challenges, there are also several positive aspects. The diagnostic imaging sector is growing and technology is developing rapidly and will likely deliver efficiencies that may help reduce costs. However, as the sector grows, the demand for radiologists will also increase at a rate that is not sustainable with the growth as it currently stands. There needs to be significant investment in increasing the number of clinical radiology trainees across Australia and Aotearoa New Zealand to ensure that the demand for diagnostic

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imaging is addressed.

Conflicts of Interest

The author has no potential conflicts of interest to disclose.

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