

COMMENTARY

Dentist-to-population ratios and practice-to-population ratios: in shortage environment with gross mal-distribution what should rural communities focus their attention on?

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Dear Editor

We read the article 'Dentist-to-population and practice-to-population ratios: in a shortage environment with gross mal-distribution what should rural and remote communities focus their attention on?' by Tennant and Kruger¹ with keen interest. Their groundbreaking findings are highly appropriate and commendable in the light of evidence of well-known and seemingly widening disparities in distribution of the dental workforce in rural and remote Australia. This is further compounded by the high burden of oral diseases, such as dental caries, missing teeth and poor perceived oral health status among rural and remote inhabitants overwhelmingly dominated by Indigenous

Australians²⁻⁴. In addition, the majority of Australian dentists (82.5%) are private practitioners⁵.

In a nutshell, practice-to-population (PtP) ratios provide the real-time matrix of the true extent of the gross geographic mal-distribution of dentists in any given country and especially in Australia. These may not be clearly expressed by conventional dentist-to-population ratios, which have inherent limitations, such as failing to account for population and socio-economics, dynamics and drivers of dental care utilisation as succinctly described by the authors. On the contrary, PtP ratios are capable of capturing regional population and socio-economic drivers that influence dental care utilisation, thus making them 'versatile summary measures' for advocacy and action. Hence, PtP ratios could



put policymakers and healthcare planners on red-alert by vividly expressing *how wide the disparity is/how unequal the inequality is*, since equity in provision of health care, including oral health care, is an important performance indicator.

There is increasing demand among policymakers for health improvements and concurrent reductions in health inequality by addressing social determinants as mandated by WHO⁶. We therefore fully endorse the conclusions of the authors for PtP ratios as an inherent measure of accessibility to complement conventional dentist-to-population ratios as workforce outcomes and its wider implications for policy decision making to address mal-distribution of the dental workforce.

Significant disparities in the urban–rural distribution of the dental workforce creating access and utilisation blocks to dental care, especially for low socioeconomic groups, is common to both developed and developing countries⁷⁻¹⁰. Such a state of affairs could affect not only the oral health status but the quality of life and productivity of rural and remote communities⁷. Furthermore, the general trend in rural and remote areas is attrition of the dental workforce due to ageing of the existing workforce and difficulty of recruiting and retaining a new dental workforce⁷. As a panacea, a number of Australian dental schools have formulated and successfully implemented rural outplacement programs for dental undergraduates¹¹⁻¹⁵. The benefit of this initiative is twofold: (1) it improves the level of appreciation and attitudes of dental undergraduates about rural lifestyles and their willingness to work in rural and remote areas in Australia^{12,13}; (2) it addresses the substantially unmet need for dental treatment of rural inhabitants¹⁵. Nevertheless, it may be too early to be complacent on the overall impact of such training modules in settling the rural dental workforce shortage. However, visiting remote areas powered by small network hub-and-spoke approaches has proven to be cost-effective, viable and sustainable in providing oral health care to underserved rural and remote Indigenous communities in Western Australia⁴.

Econometric theory of location of dentist, demand-based model and dental threshold analysis by Nash¹⁶ provided a rational explanation for disparities in geographical distribution of dentists. Economic location theory could explain why a dentist may not be able to earn a profitable return where there is lack of market forces¹⁶. The size of the market also plays a pivotal role in ensuring a competitive return. Significant training and operational costs incurred in producing a dentist and operating a dental practice respectively are further important issues. Patients or dental care seekers are a critical input in production of dental care, thereby making the quantity and some aspects of quality of this vital input a crucial driver in determining locations of dental practices. Patients' travelling time to the dental clinic, opportunity costs and demand for dental care also become important influential factors in dental practice location preferences¹⁶. Hence, the fundamentals of location economics of dental practice could be not a plausible explanation for the present findings: PtP ratios differed by almost 40 000%, with the greatest density of practices in the core of capital cities coinciding with high wealth areas. This merits further investigation with wider implications for policymakers to address rural dental workforce shortages and mal-distribution in Australia and other countries, focusing on root causes.

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