

A New Way to Measure Geographic Access to Dentists in North Carolina

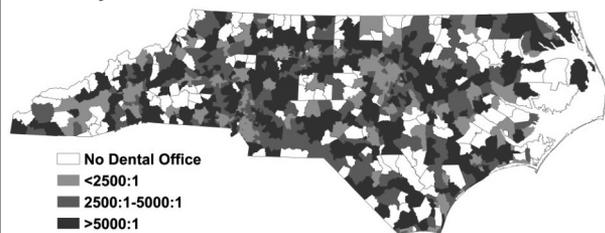
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One of the most common metrics used in health workforce policy is the share of the population that lives in a health professional shortage area, as designated by the Health Resources and Services Administration (HRSA). For example, HRSA estimates that 2.1 million people, or about 20% of the population in North Carolina, live in a dentist shortage area [1]. While there are well-known and serious shortcomings to HRSA's methodology [2], there has not been anything better developed to replace it, at least when it comes to measuring geographic access to dentists.

This led the Health Policy Institute (HPI) at the American Dental Association to launch an innovative analysis of geographic access to dentists in every state. This 2-year effort involved creating a new, unique proprietary database of all locations in the United States where dentists practice, merging detailed population data, and then analyzing the geographic proximity of dentists to the population using sophisticated geo-mapping techniques. Through a partnership with the Centers for Medicare and Medicaid Services, HPI researchers were able to identify locations where dentists practice and where at least one dentist participates in Medicaid or the Children's Health Insurance Program (CHIP), allowing us to analyze geographic access for the publicly-insured population as well as the entire population. The analysis is at the Census tract level and uses transportation networks to calculate travel times. The detailed methodology, including limitations, is available in a report by Nasseh and colleagues [3] and results are available for every state [4].

Specific to North Carolina, the analysis estimates that 90% of publicly-insured children live within a 15-minute travel time of a dentist that participates in Medicaid or CHIP, and 96% of the entire population lives within a 15-minute travel time of a dentist. These statistics suggest geographic access is very robust. However, adjusting for the relative supply of dentists within a 15-minute travel time paints a different picture. It turns out that only 33% of publicly-insured children live in areas with at least 1 Medicaid or CHIP dentist for every 500 publicly-insured children within a 15-minute travel time, and only 42% of North Carolinians live in areas with at least 1 dentist for every 2,500 people within a 15-minute travel time (Figure 1). Results for alternative population-to-provider thresholds are also presented in the one-page reports from the HPI for every state [4]. In North Carolina,

FIGURE 1.
Population per Dentist within a 15-minute Travel Time Boundary



Source: Health Policy Institute

71% of the population lives in areas with at least 1 dentist for every 5,000 people within a 15-minute travel time. For all these measures, North Carolina ranks below average compared to other states.

Why is this research important? First, it provides a big picture assessment of geographic access to dentists using travel times and not simple population-to-provider ratios within political boundaries (eg, counties). Second, the analysis helps identify “hot spots” where geographic access to dentists is limited, either for the entire population or for publicly-insured children in particular. In the accompanying figure, the white and dark grey zones are areas with limited geographic access to dentists, and 29% of the population lives in these zones. Policymakers should target tailored interventions like loan forgiveness to new dental school graduates or mobile dental service to these geographic areas. Third, and most important, the analysis is a significant step forward but is by no means the final word. There are several important extensions to the analysis, such as examining dental care utilization patterns in relation to provider availability and adopting alternative measures of dentist participation in Medicaid and CHIP. Accordingly, HPI has developed a “2.0” version that gives much more powerful insights and can help drive policy decisions. We hope to work with the North Carolina Department of Health and Human Services to carry out this much more in-depth analysis. In a world of heightened fiscal constraints,

particularly within programs like Medicaid and CHIP, it is vital that rigorous empirical analysis guide resource allocation decisions. **NCMJ**

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