Substantial Geographic Variation in Access Dental Care Evident in North Dakota, Missouri and Wisconsin

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Objective: To examine geographic access to dental providers for the general population and for children on public insurance in Missouri, North Dakota and Wisconsin.

Methods: Using a newly constructed dentist office database constructed from the American Dental Association masterfile and other sources, we use the two-step floating area catchment area method to calculate population to provider ratios at the census block group level. These ratios are used to determine potential geographic dentist shortage areas. We utilize highly accurate street network data to estimate travel times and catchment areas between population centers and dental offices. This methodology accounts for actual spatial distribution of dental providers and potential dental patients.

Results: Within and across our three study states, there is significant variation in geographic access to dental offices for the general population and publically insured children. In general, more than 90% of publicly insured children have access to dental providers within 30 minutes. Among the three states examined, Missouri has the greatest geographic disparities to dental care. Individuals in Wisconsin have the greatest geographic access to dental providers. Assuming a 30 minute travel time threshold, 15.1 percent of Missouri residents, 14.8 percent of North Dakota residents and 4.5 percent of Wisconsin residents live in geographic dental shortage area. Among children enrolled in public insurance programs, 16.9 percent in Missouri, 10.5 percent in North Dakota and 1.8 percent in Wisconsin live in a geographic dental shortage area.

Conclusion: The Health Resources and Services Administration, which designates dental health professional shortage areas, relies on administrative boundaries to calculate population to dental provider ratios. These boundaries may not reflect realistic dental care markets and may lead to an inaccurate prioritization of funding. The methods employed in this paper may give policymakers a template to better determine geographic dentist shortage areas.