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ARVO Annual Meeting Abstract | June 2022

Evaluating access to laser therapy by driving distance using Medicare data and Geographic Information Systems mapping

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Footnotes

Commercial Relationships Jamie Shaffer None; Darby Miller None; Aaron Lee Genentech, Roche, and Johnson and Johnson, Code C (Consultant/Contractor), US Food and Drug Administration, Code E (Employment), Santen, Regeneron, Carl Zeiss Meditec, and Novartis, Code F (Financial Support); Cecilia Lee None

Support Research to Prevent Blindness Unrestricted Core Grant

Investigative Ophthalmology & Visual Science June 2022, Vol.63, 3090. doi:

Abstract

Purpose : To address concerns about regional variation in access to eye care, several states allow optometrists to perform laser procedures previously limited to ophthalmologists, including selective laser trabeculoplasty (SLT) and Nd:YAG laser procedures. We evaluated access to care for residents of three such states by comparing driving distances to optometrists versus ophthalmologists.

Methods : Medicare Fee-For-Service Data was obtained from the Centers for Medicare &

Medicaid Services for 2016 to 2020 for Oklahoma, Kentucky, and Louisiana. Nine digit zip codes for the offices where YAG and SLT were performed were geocoded into GPS coordinates using GEODATA from Melissa (Rancho Santa Margarita, CA) matched by the year of service. Using TomTom historical traffic data, isochrones for 10, 20, and 30 minute driving times were generated for each office location. Population weighted centroids at the census block level from the US Census 2020 data were then used to measure the proportion of the population within 30 minutes of an optometrist or ophthalmologist performing YAG and SLT procedures.

Results : Isochrones for optometrists and ophthalmologists show that optometrists cover an area similar to that covered by ophthalmologists for SLT (Figure 1) and YAG (Figure 2) laser procedures. For SLT, the percent of population covered within 30 minutes of driving time by optometrists was 73.40% (95% CI 73.38 - 73.42), compared to 84.05% (95% CI: 84.03 - 84.07) for ophthalmologists. For YAG, the percent of population covered by optometrists was 84.77% (95% CI 84.75 - 84.79), compared to 85.25% (95% CI: 85.23 - 85.27) for ophthalmologists. For both laser procedures, the percent of the population covered exclusively by optometrists was 5.63% (95% CI 5.62 - 5.64), compared to 6.06% (95% CI: 6.05 - 6.07) by ophthalmologists. The odds ratio for coverage by optometry was 0.92 (95% CI: 0.92 to 0.93).

Conclusions : Despite expansion of laser privileges to optometrists in Oklahoma, Kentucky, and Louisiana, ophthalmologists continue to serve a statistically significant higher percentage of the population for both laser procedures. The expansion of laser privileges to optometrists has not resulted in a statistically significant increase in access to laser procedures.

This abstract was presented at the 2022 ARVO Annual Meeting, held in Denver, CO, May 1-4, 2022, and virtually.

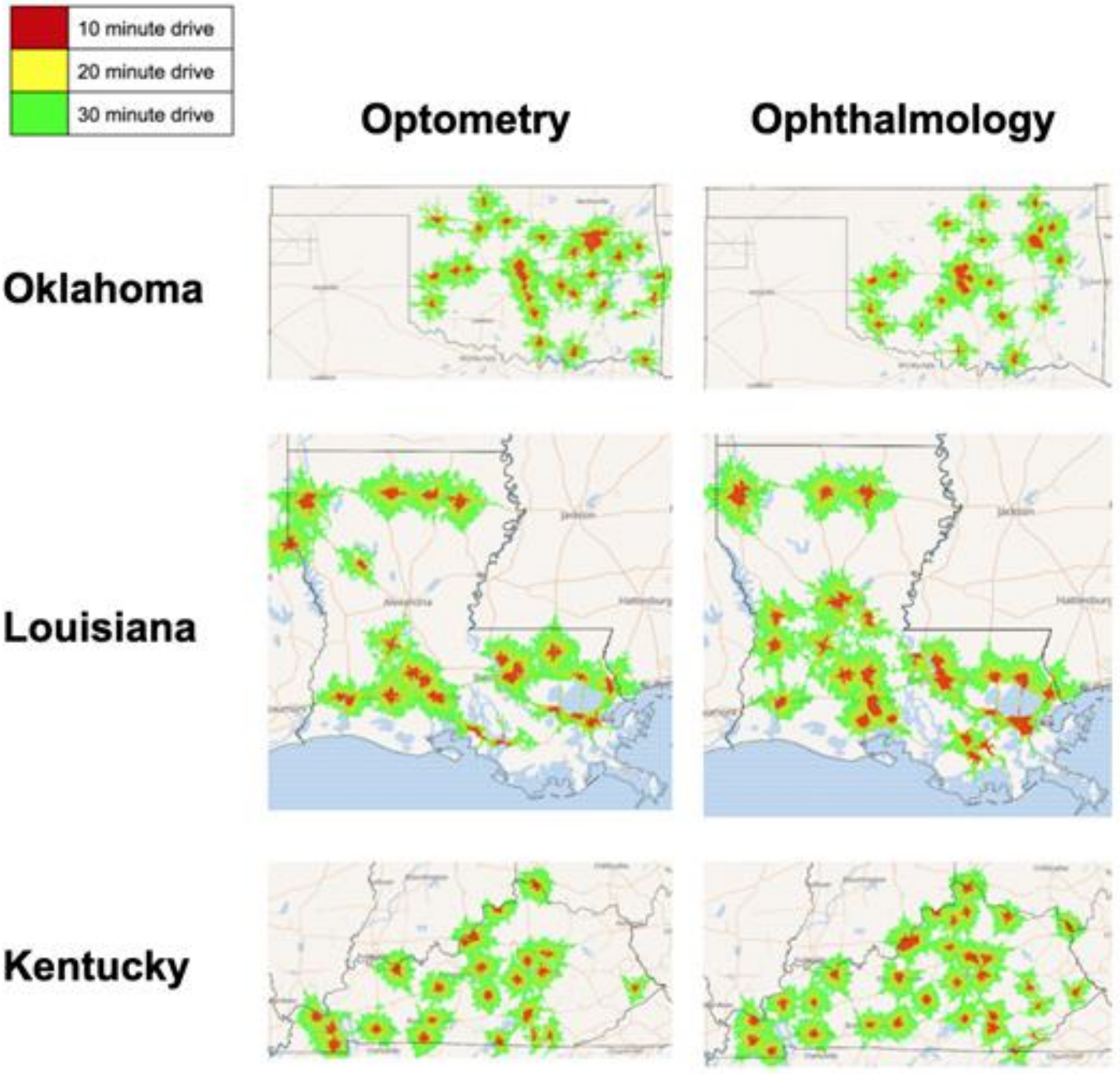

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Figure 1. Patient access to SLT by provider type and region.

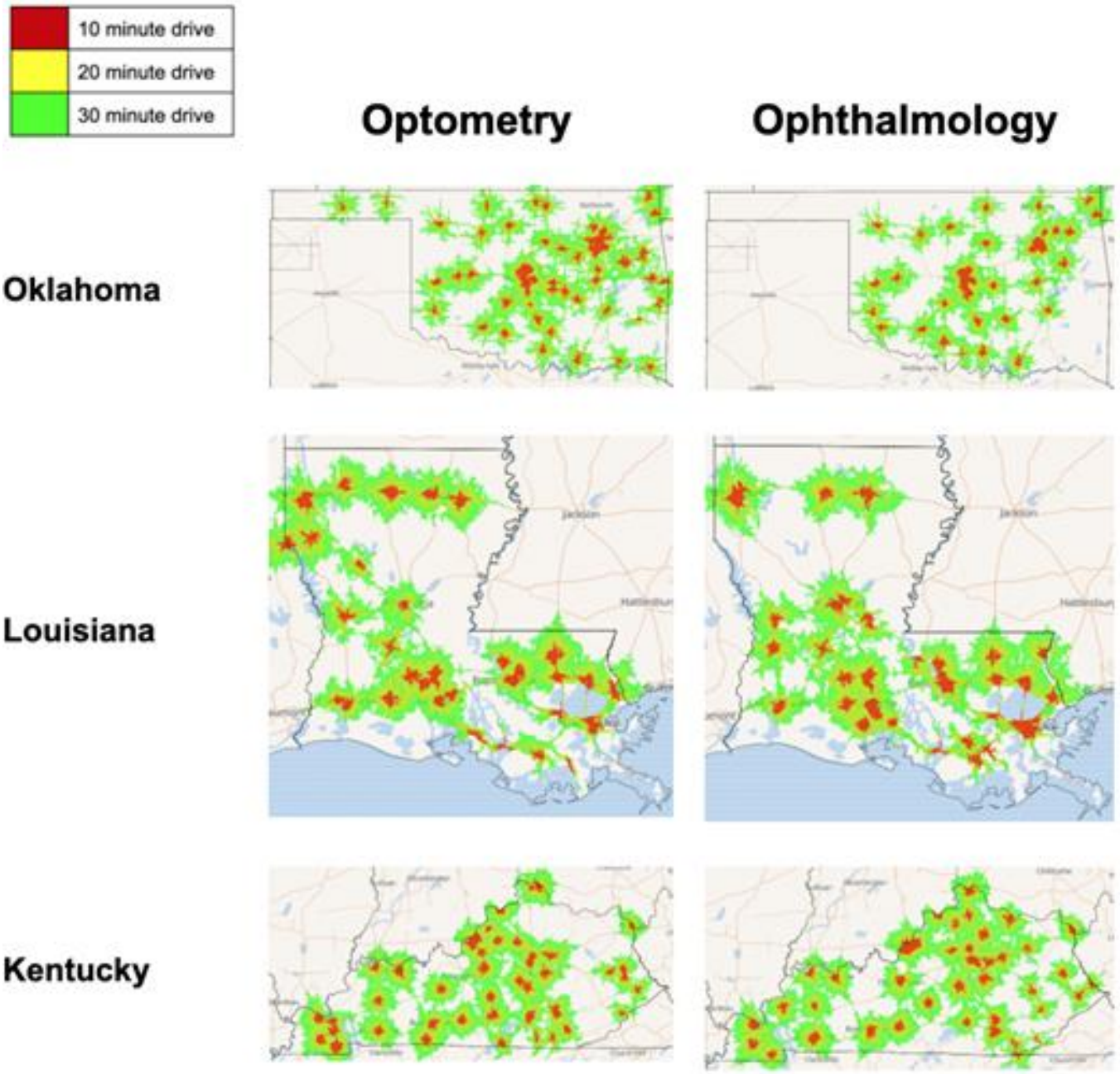

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Figure 2. Patient access to YAG by provider type and region.