

Geographic and Sociodemographic Perspectives on Ophthalmic Plastic and Reconstructive Surgery Providers in the United States

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Introduction: Ophthalmic plastic and reconstructive surgeons are trained to address complex ocular and facial disorders, considering functional and esthetic dimensions. These ophthalmologists are experts in the management of eyelid, orbit, and tear duct pathologies. Ensuring equitable access to their services is essential for comprehensive healthcare and optimal quality of life. To date, no study has evaluated the demographic and geographic disparities in access to oculoplastic care. This study characterizes oculoplastic surgeons in the United States (U.S.) and maps their service coverage areas (SCAs).

Methods: Using the 2024 American Society of Ophthalmic Plastic and Reconstructive Surgery (ASOPRS) directory, we identified all U.S.-based practicing ASOPRS-trained providers (referred to as OPRS) and confirmed their primary practice location. We further recorded their ASOPRS teaching site (when applicable), gender and degrees. Their primary practice addresses were converted into latitude and longitude coordinates using LocationIQ (Unwired Labs). These geographic coordinates were inputted in ArcGIS Pro (Esri) to perform geospatial coverage analyses. We delineated SCAs by generating regions within a 90-minute drive time from each provider address. The most recent American Community Survey data (ACS) from the U.S. Census Bureau were then layered onto the provider distribution map to characterize the population within and outside the SCAs. Social determinants of health of the population within and outside the SCAs were compared using chi-square tests.

Results: Of the 741 practicing OPRS, 186 (25.1%) worked at an ASOPRS teaching site, 527 (71.1%) were men, and 55 (7.4%) had a Masters/Doctorate degree. States with the most OPRS were California (n=117 OPRS, 15.9%), Texas (n=54, 7.3%) and Florida (n=53, 7.2%), while no OPRS practiced in Montana, North Dakota, South Dakota, and Wyoming. Of the 336,586,609 Americans nationwide, 294,070,172 (87.4%) lived within a 90-minute driving time from an OPRS office. The population living outside a 90-minute drive from OPRS was significantly more likely to be White, Non-Hispanic, without university education, receiving social security income, residing in a household below the federal poverty level, and lacking health insurance, compared to the population living inside 90-minute SCAs (each $P < 0.001$).

Conclusions: Inequitable geographic distribution in OPRS across the U.S leads to service deserts, disproportionately affecting patients in rural areas and those with lower socio-economic status. Similar patterns have been observed in studies across various ophthalmic subspecialties, including pediatric uveitis, glaucoma, and neuro-ophthalmology. Recognizing these geographical and social obstacles to oculoplastic care access can inform future policies aimed at reducing these barriers.