

Patient Demand for Plastic Surgeons for Every US State Based on Google Trends

Jared A. Blau, MD, MEd; Kelli R. Aibel, BS; Heather A. Levites, MD; Brett T. Phillips, MD, MBA; Scott T. Hollenbeck, MD

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INTRODUCTION: In today's healthcare market, patients have high levels of access to information and choice. As a profession, plastic surgeons must meet the public demand for aesthetic and reconstructive procedures. Patients often search for physicians using Google, the world's most popular search engine. Google offers insights into patient needs through their search history.

METHODS: The Google Trends data, which reveal Relative Search Volumes (RSV), were pulled for all searches for "plastic surgery" from the June 2014-June 2015 periods. The RSV data are normalized using the total search volume per region. The number of active plastic surgeons per state, provided by the American Society of Plastic Surgeons (ASPS), was divided by the US Census Bureau population estimates for 2014 to achieve a surgeons-per-capita value for each state, or "surgical concentration." The Google score was divided by this surgical concentration to yield a "surgical demand index" for each of the fifty states. Median two-family incomes were obtained from the Census Bureau.

RESULTS: Florida, New York, and Connecticut had the greatest surgical concentration of ASPS surgeons per ten thousand people (0.220, 0.217, and 0.209, respectively), and Wyoming, Arkansas, and Vermont had the smallest concentration (0.051, 0.071, 0.080). California exhibited the greatest number of Google searches (RSV=100), followed by Florida and Hawaii (RSV=95). Oregon (RSV=38), Virginia (RSV=52), and Alaska (RSV=58) had the lowest number of relative searches. The "surgical demand index" was greatest in Wyoming (1187.778), Oklahoma (993.751), and Arkansas (974.664) and smallest in Oregon (264.682), Virginia (320.716), and Connecticut (354.872). The number of surgeons-per-capita for each state positively correlates with the median income of that state ($r^2 = 0.22$, $p < .001$).

CONCLUSION: The distribution of US plastic surgeons is not homogenous with respect to population, with patient income likely driving location of practice. The Google search data suggest that some markets (e.g. Oregon) are saturated while others (e.g. Wyoming) have significant demand (as measured by internet search patterns) that is not met by the relative number of plastic surgeons in those regions.