

Geospatial Analysis of Certified PA Distribution in Relation to Primary Care Shortage Areas in California

Background

- Health Professional Shortage Areas (HPSAs) are areas, populations, or facilities experiencing a shortage of health care services¹.
- California has the most HPSAs in the nation, specifically in primary care².
- In 2023, 66.2% of PAs surveyed by NCCPA reported working in settings other than primary care or family practice³.
- This study compares geographic PA-to-population ratios in California, focusing on primary care HPSAs.

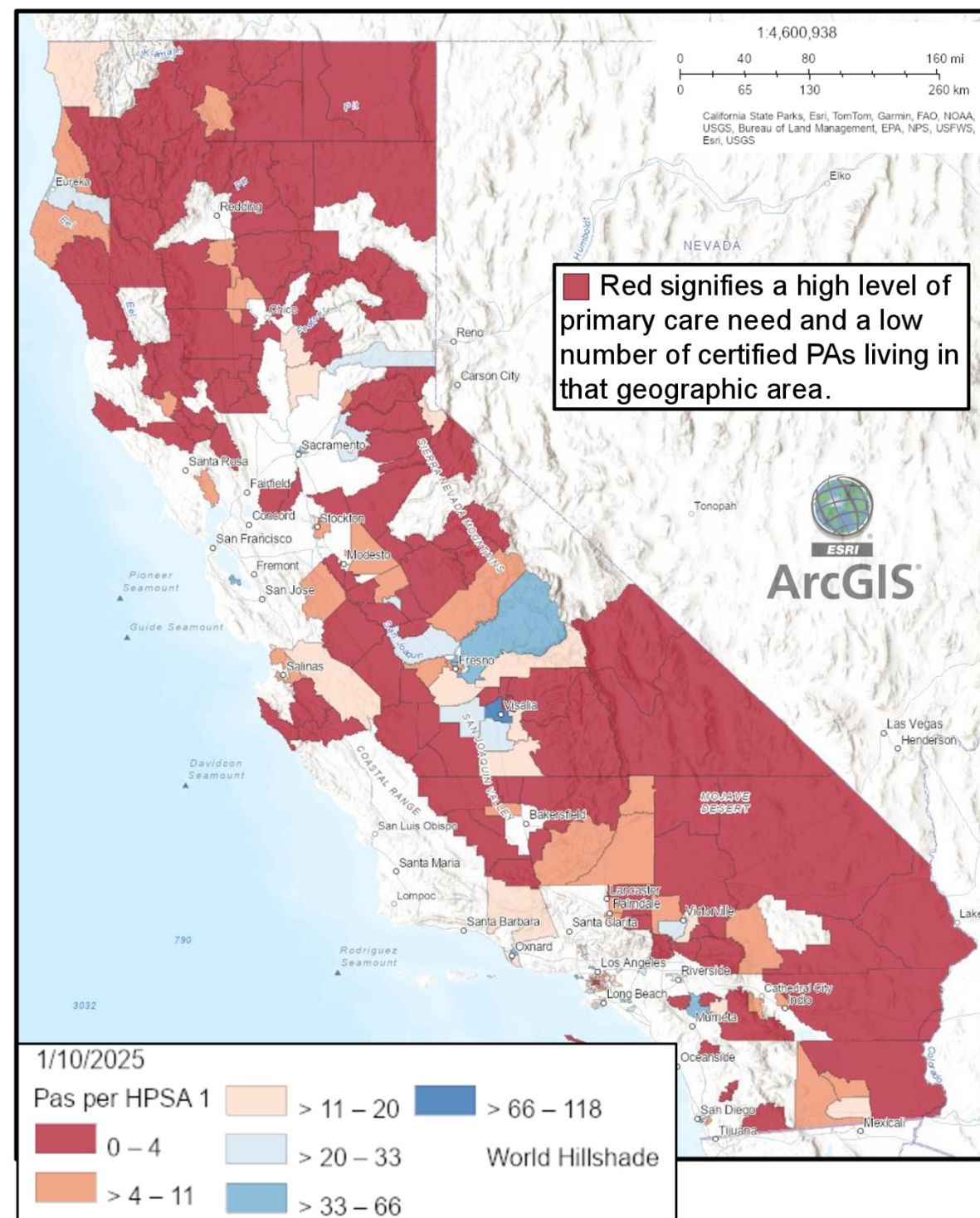


Figure 1: HPSA Scoring Calculation¹

Methods

- The study utilized publicly available data: certified PA locations (California Department of Consumer Affairs⁴), U.S. Census data, and primary care HPSA data (State of California⁵).
- After cleaning the data (removing expired/out-of-state licenses, inactive/duplicate HPSAs), 14,802 active PA licenses with California addresses and 214 HPSA areas remained⁴.
- PA addresses were geocoded (latitude/longitude) and plotted using ArcGIS software.
- HPSAs were defined as polygonal areas in ArcGIS, and the number of PAs within each area was quantified.
- Pearson's correlation coefficient was used to analyze the relationship between HPSA need severity (HRSA score) and the number of PAs residing in those geographic areas.

Certified PAs Per Primary Care HPSA



Results

- A negative correlation ($r = -0.31$) was found between the highest need rating (HRSA score of 19) and the presence of certified PAs living in that geographic area, indicating an inverse relationship.
- 76 HPSA areas have fewer than five PAs living within them.
- 25 HPSA areas, all categorized as rural, have no certified PAs residing within them.

Discussion/Conclusions

- Geospatial mapping combined with statistical analysis effectively identifies patterns in PA distribution in California.
- Visual maps highlight mismatches between PA supply and high-need areas.
- These findings can inform PA workforce development, funding decisions for more scholarships, and strategies to improve healthcare access statewide.

References

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