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Publication Date

2024-09-12

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Association Between Drive-Through Mobile Vaccination Clinics and Neighborhood-Level Factors

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Background

- Amid the COVID-19 pandemic, the need to avoid an influenza and COVID-19 "twindemic" led to the deployment of socially distanced, **drive-through mobile vaccination clinics**.
- There are approximately 2,000 mobile clinics nationwide and 120 in California.
- However, few studies have determined **whether social determinants of health (SDOH) influence the use of mobile drive-through clinics vs static clinics for immunizations**.

Objectives

The aims of this study were to:

- Describe the demographic and clinical distribution of patients who sought immunizations in drive-through mobile vaccination clinics compared to traditional, static clinics, and
- Determine whether the use of mobile immunization clinics were associated with social determinants of health.

Study Design and Methods

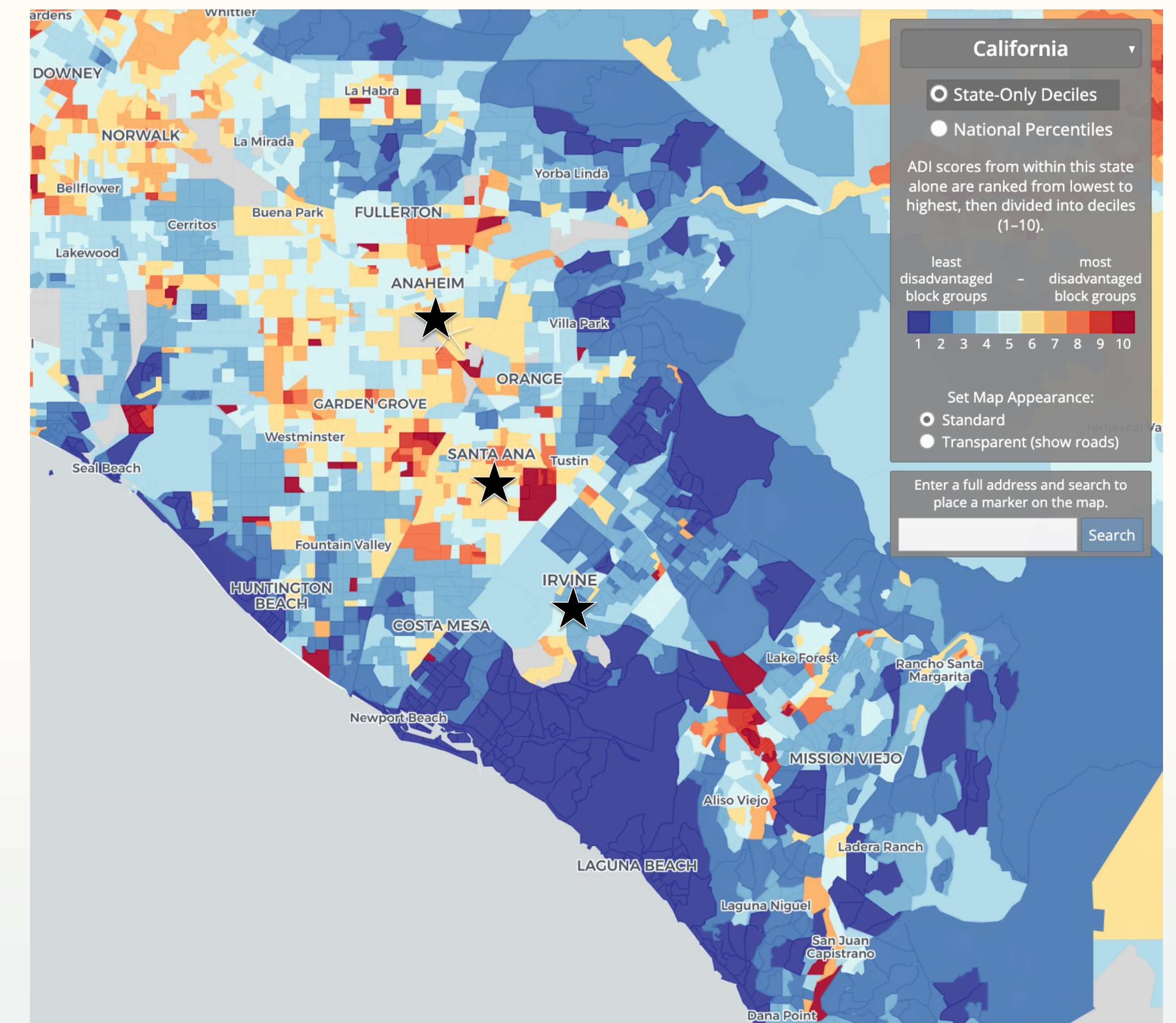
- Retrospective Cohort Study**
- Setting:** Static and mobile clinics across Orange County (3 mobile clinics and 3 traditional, static clinics).
- Study Population:** 25,246 patients seeking immunizations (3,151 in mobile clinics, 22,095 in static clinics).
- Study Timeline:** 8/1/2020 to 12/31/2020
- Data Collection**
 - Data were collected from patient charts on demographic characteristics such as age (stratified 0-21 years, 22-64 years, and 65 years and older), sex, race, ethnicity, main spoken language, and insurance type.
 - SDOH was measured using **state-ranked Area Deprivation Index (ADI)**, a composite measure of 17 variables across income, education, employment, and housing domains by neighborhood/block group. ADI ranking was categorized into quintiles with higher ADI indices corresponding to greater levels of disadvantage.
- Statistical Analysis**
 - Logistic regression** was used to examine potential associations between neighborhood level characteristics, and whether the immunization was received in a mobile or static clinic.
 - Chi-square analysis** was used to ascertain odds ratios and confidence intervals for the associations between demographic characteristics and type of clinic.
 - Significance was set at $p < 0.05$.
 - Statistical analysis was conducted using SPSS (version 28).
 - The study was approved by our institution's IRB.

Results

- A smaller proportion of the following patients received immunizations at mobile (vs static) clinics:
 - < 65 years of age (60.3% vs 74.4%)
 - White (60.3 vs 66.8%)
 - Hispanic (19.4% vs 58.8%)
 - Spanish-speaking (5.6% vs 33.7%)
 - Receiving public insurance (36.7% vs 74.9%)
- Less likely to obtain vaccines through mobile clinics were those who:
 - Identified as Black (OR 0.51; 95% CI 0.35, 0.75) relative to Caucasian patients
 - Primary language was Spanish (0.29; 0.24, 0.35)
 - On public insurance (0.25; 0.23, 0.28) versus commercial insurance
- More likely to obtain vaccines through mobile clinics were those who were:
 - Age ≥ 65 (7.04; 5.94, 8.34) compared to those age ≤ 21 years
 - Non-Hispanic (1.67; 1.44, 1.90) relative to Hispanic patients
- Additionally, those who lived in the most disadvantaged neighborhoods were the least likely to obtain vaccines at the mobile clinics (0.67; 0.48, 0.93).**

Top image: Distribution of ADI scores across Orange County area. From: Neighborhood atlas®. Neighborhood Atlas - Mapping. (n.d.).
<https://www.neighborhoodatlas.medicine.wisc.edu/mapping>

Table 1: Proportion of patients seeking care at mobile vs static clinics by age, race, ethnicity, main spoken language and insurance type.



	Mobile Clinic	Static Clinic
Age < 65	60.3%	74.4%
White	60.3%	66.8%
Hispanic	19.4%	58.8%
Primarily Spanish-speaking	5.6%	33.7%
Public insurance	36.7%	74.9%
Commercial insurance	91.3%	15.6%

Conclusion and Next Steps

- The study demonstrates that patients who lived in more disadvantaged neighborhoods were less likely to seek vaccinations at mobile clinics.**
- Additional work is needed to identify why the mobile immunization clinics were highly skewed towards those who lived in more advantaged areas.

Citations

- Coaston A, Lee SJ, Johnson JK, Weiss S, Hoffmann T, Stephens C. Factors associated with mobile medical clinic use: a retrospective cohort study. *Int J Equity Health*. 2023 Sep 26;22(1):195. doi: 10.1186/s12939-023-02004-3. PMID: 37749529; PMCID: PMC10521435.
- Kind AJH, Buckingham W. Making Neighborhood Disadvantage Metrics Accessible: The Neighborhood Atlas. *New England Journal of Medicine*. 2018. 378: 2456-2458. DOI: 10.1056/NEJMp1802313. PMCID: PMC6051533. AND University of Wisconsin School of Medicine and Public Health. 2021 Area Deprivation Index version 4. Downloaded from <https://www.neighborhoodatlas.medicine.wisc.edu/>, July 14, 2023
- Malone NC, Williams MM, Smith Fawzi MC, Bennet J, Hill C, Katz JN, Oriol NE. Mobile health clinics in the United States. *Int J Equity Health*. 2020 Mar 20;19(1):40. doi: 10.1186/s12939-020-1135-7. PMID: 32197637; PMCID: PMC7085168.