Health Conditions and Health Care among California's Undocumented Immigrants

Technical Appendices

CONTENTS

Paulette Cha, John Heintzman, Shalini Mustala, Patricia Malagon, and Suparna Navale

Appendix A. Study Design

We describe the health status and health care use of likely undocumented immigrants in community health organizations, primarily CHCs, in comparison to Medi-Cal patients. We focus on low-income adults who do not qualify for recent Medi-Cal expansions regardless of age or immigration status, as they remain vulnerable to many health care barriers, and are the subject of policy efforts to expand coverage and care.

Our quantitative analyses compare utilization patterns of undocumented immigrants with Medi-Cal patients to determine whether undocumented residents have lower rates of accessing preventive care such as annual exams, age-appropriate screenings, and routine oral care. Although there is robust evidence that uninsured status is associated with less access, community health centers offer a unique opportunity to address these questions because they serve patients regardless of insurance or immigration status. Immigrants—including the undocumented—are quite likely to identify a clinic as their usual source of care. It is the most cited usual source among low-income immigrants, and among undocumented immigrants with any usual source, 73 percent identify a clinic as that place (see Appendix C in Cha and McConville 2021b). Findings are regression-adjusted for individual, geographic, and temporal characteristics.

The value of combining clinical data with information on immigration status

The majority of California's undocumented immigrants do not have private health insurance coverage and are not eligible for full-scope Medi-Cal. As a result, they often rely on safety net providers like community clinics for health care. PPIC's past work finds that undocumented immigrants are less likely to see a doctor, receive routine care, or have a usual source of care, compared to other immigrants (Cha and McConville 2021a). We were unable, however, to rule out the possibility that undocumented immigrants are healthier and simply need less care.

We were unable to assess their health needs since individuals who receive less care are less likely to have underlying conditions diagnosed. These are common issues with self-reported health information, and are especially a concern for studies on immigrants, who may indeed be healthier. Their relative good health is likely to reflect self-selection, and often corresponds to their surviving arduous journeys to arrive in the US, and working in physically demanding jobs once here. Furthermore, reverse migration of older, sicker individuals could contribute to making the US-based immigration population especially young and healthy; the "salmon hypothesis" asserts that Latino immigrants have a tendency to return to their home countries in old age, though the hypothesis is far from a consensus (Guadamuz et al. 2021; Abraído-Lanza et al. 1999).

Accurate data on undocumented immigrants' health are extremely hard to come by. Often, the tradeoff for having a way to determine undocumented status is that the health data are self-reported and cannot be verified. Recall bias affects accurate reporting of health events, as well as their timing. For example, the California Health Interview Survey, the National Agricultural Workers Survey, and older panels of the Survey of Income and Program Participation have identified likely undocumented immigrants, but these surveys do not have verified data on health conditions or needs. A more robust survey is the Medical Expenditures Panel Survey, which collects data from both providers and patients, or the National Health and Nutrition Examination Survey, which collects medical exam data, but neither collect information on documentation status. Claims databases, which are vast troves of health data, are not ideal for studying undocumented patients. Notably, California's planned statewide health care payments database will likely exclude undocumented immigrants as long as they are

uninsured (Office of Statewide Health Planning and Development 2020). As a result, we find that studies of undocumented immigrants' health and health care access tend to fall into a couple of broad categories:

(1) Large state or national studies using sources like the ones mentioned above that rely on self-reported health outcomes (see Ortega et al. 2018; Ro and Van Hook 2021 for examples). A notable subset of these studies focuses on insurance coverage, either as an outcome itself or as a proxy for access to care (see Zuckerman, Waidmann, and Lawton 2011; Ku and Matani 2001; Porteny, Ponce, and Sommers 2022). Health insurance numbers are some of the most available health data, which is why coverage is a common substitute for access. While extremely important, coverage is only part of the story. These are valuable studies, but clinical outcomes add real value.

(2) Studies limited to one city, one local geography, or one health system These include Goldman, Smith, and Sood 2005; Swartz et al. 2017; Chavez 2012; Nguyen et al. 2019; Swartz et al. 2017; Nandi et al. 2008; Marshall et al. 2005; and various studies using the RAND Corporation's L.A. FANS data. Studies of this type make important contributions to our knowledge about undocumented immigrants' health, and some of them like Nandi et al. leverage valuable clinical data. However, generalizability is difficult when the study sample is specific to one location.

Quantitative Data

Answering our research questions while building on past work requires data with detailed, non-self-reported information about health conditions and care utilization, as well as the critical ability to identify undocumented immigrants. PPIC and OCHIN are partnering to address these questions. OCHIN, a nonprofit leader in equitable health care innovation and a trusted partner to a growing national network, has a network of 45 health systems in California representing 350 clinic sites. The clinics serve systemically underserved patients, including those who are uninsured, school-based and foster children, veterans, migrant/seasonal workers, and unhoused or incarcerated community members. They contribute data to the Accelerating Data Value Across a National Community Health Center Network (ADVANCE) Clinical Research Network, funded by the Patient-Centered Outcomes Research Institute (PCORI), which contains visit-level information from CHCs across the country. As the leader of ADVANCE, OCHIN manages the country's most comprehensive database for the study of health care and outcomes among systemically underserved patients in partnership with Fenway Health, Health Choice Network (HCN), and Oregon Health & Science University (OHSU) (OCHIN 2023). We use ADVANCE data from OCHIN member clinics in California.

Over the period 2018-2020, OCHIN's California clinics served about 870,000 patients from the border with Mexico to the Oregon state line, and from the coast to the Nevada state line. Some of the strengths of the ADVANCE data are that they have a unified format across clinics, addressing interoperability hurdles endemic to heath care data systems (Reisman 2017), and a unique patient identifier that allows us to track patients over time even if they get care at different participating clinics.

An OCHIN-based team member created a unique extract of the ADVANCE data for our study. It includes information about clinical visits to 350 participating CHCs across 28 of California's counties. These data draw from electronic health records (EHRs), and contain many details unavailable in surveys, including information we use to determine likely immigration status. The data are recent, covering January 2018 to November 2022. Our data include:

- Patient demographics: date of birth, sex, ethnicity, race, preferred language
- Visit information: date of visit, payer details, and codes describing the reason for the visit
- Flags for selected chronic conditions: asthma, diabetes, high blood pressure, high cholesterol, obesity, heart disease

- Vital signs: height, weight, blood pressure, smoking status
- Immunizations: details about flu, COVID-19, and shingles vaccination
- Screenings: details about colonoscopy, mammography, and cervical cancer screening

Study population

Study members are low-income adult patients in OCHIN's California CHCs. They are at least 19 years old, with incomes under 138 percent of the federal poverty level, the level that confers income eligibility for Medi-Cal among single adults. Information about family size and income are self-reported by patients to their clinics.

Proxy for undocumented status

CHCs provide care for all individuals, regardless of insurance status, immigration status, or ability to pay. They do need to cover their operating costs and pay their providers, however, and CHCs are highly financially motivated to sign up eligible uninsured patients for Medi-Cal. Give this incentive, we use being uninsured despite appearing income-eligible for Medi-Cal as a proxy for undocumented immigration status. A similar proxy using OCHIN EHR data in Oregon had fair-to-good concordance with recollections of immigration status by clinic staff who had engaged with patients about program eligibility (Heintzman et al. 2020). And using payer information to identify undocumented patients has been used in other recent clinical studies (Rodriguez et al. 2021; Nwadiuko et al. 2021). Technical Appendix A describes how we extracted the EHR data and prepared them for analysis, including how we implemented the undocumented status proxy.

Qualitative Data

Los Angeles County, the state's largest, is home to the largest number of undocumented residents among California counties. In LA we supplement the quantitative data with qualitative data about undocumented immigrants, their interactions with health care and social services, and Los-Angeles-specific circumstances. We collect these data through semi-structured interviews with seven experts. Technical Appendix D contains a list of interview participants and a sample interview guide.

Initial Data Extraction from ADVANCE Network Data

We use ADVANCE data collected from OCHIN's community health centers (CHCs) in California. The ADVANCE data use a consistent electronic health record (EHR) format, and a patient identifier used across all of OCHIN's CHCs. An OCHIN-based team member extracted an initial set of EHR data for likely study patients.

We used the following criteria for including patients:

- Established patient at an OCHIN-participating community health center in California (this excluded individuals who, for example, only came in once to receive an immunization)

- Met all of the following conditions in at least one visit between January 1, 2018, to March 31, 2022

    o Patient was age 19 or older

    o Patient's income under 138 percent of the federal poverty level (the Medi-Cal eligibility threshold)

    o Patient's payer for the visit is either:

        ▪ Blank, cash, or charity care (potential treatment group member)

        ▪ Medicaid or Medi-Cal (potential control group member)

The data we collected included all ambulatory and telehealth encounter data for the likely study participants over the period January 1, 2018, and November 24, 2022. We then required study members to meet inclusion criteria by the end of 2020 to ensure sufficient follow-up for some of our outcome measures. This restriction means that new undocumented young adults could join the study by presenting at a participating CHC after gaining eligibility for Medi-Cal, but older undocumented adults could not. (This is not intentional. Our study was designed before the older adult expansion was announced.)

Identifying visit types

OCHIN's research division has established algorithms and processes for flagging some types of visits. We used the following flags, edited slightly using information from the level of service codes:

- Preventive health: This flagged visits that were coded for preventive visits such as annual checkups. Visits conducted with primary care providers with CPT codes for new or established patient preventive medicine services, evaluation and management visits, annual wellness visits for Medicare, and audio only visits. Primary care providers were identified using NUCC taxonomy (classification and specialization), based loosely on the ACA definition of a primary care provider.

  Provider definitions used:

  Classification = Family Medicine, Internal Medicine AND Specialization = Blank, Adolescent Medicine, Adult Medicine, Geriatric Medicine

  Classification = General Practice

  Classification = Pediatrics AND Specialization = Blank, Adolescent Medicine, Neonatal-Perinatal Medicine

  Classification = Preventative Medicine AND Specialization = Preventive Medicine/Occupational Environmental Medicine, Public Health & General Preventive Medicine

  Classification = Clinical Nurse Specialist AND Specialization = Blank, Acute Care, Adult Health, Family Health, Gerontology, Home Health, Neonatal, Pediatrics, School

  Classification = Nurse Practitioner AND Specialization = Blank, Acute Care, Adult Health, Family, Gerontology, Neonatal, Pediatrics, Perinatal, Primary Care, School

  Classification = Physician Assistant AND Specialization = Blank, Medical

  Visit definitions used:

  level_of_service = 99201, 99202, 99203, 99204, 99205, 99211, 99212, 99213, 99214, 99215, 99241, 99242, 99243, 99244, 99245, 99381, 99382, 99383, 99384, 99385, 99386, 99387, 99391, 99392, 99393, 99394, 99395, 99396, 99397, G0438, G0439, G0468, 99441, 99442, 99443 AND PC_provider

- Behavioral health: This flagged visits that were attended by a behavioral health provider or that were coded for mental health, psychiatric, or substance use disorder health services. Behavioral health providers were identified based on NUCC taxonomy with a classification of psychiatrist, counselor, therapist, psychologist, or with a specialization of mental health or counseling.

  Provider definitions used:

  Classification = Psychiatry & Neurology, AND Specialization = Behavioral Neurology & Neuropsychiatry, Child & Adolescent Psychiatry, Forensic Psychiatry, Geriatric Psychiatry, Psychiatry

Classification = Counselor, AND Specialization = Blank, Mental Health, Professional

Classification = Marriage & Family Therapist

Classification = Psychologist AND Specialization = Blank, Addiction (Substance Use Disorder), Clinical, Clinical Child & Adolescent, Counseling

Classification = Clinical Nurse Specialist AND Specialization = Psych/Mental Health, Psych/Mental Health – Adult, Psych/Mental Health – Child & Adolescent, Psych/Mental Health – Child & Family, Psych/Mental Health – Community

Classification = Clinic/Center AND Specialization = Adult Mental Health, Mental Health (Including Community Mental Health Center), Adolescent and Children Mental Health

Classification = Behavioral Analyst

Classification = Psychiatric Unit

Classification = Nurse Practitioner AND Specialization = Psych/Mental Health

Visit definitions used:

level_of_service = 90785, 90786, 90791, 90792, 90832, 90833, 90834, 90836, 90837, 90838, 90839, 90840, 90845, 90846, 90847, 90849, 90853, 90863, 90865, 90867, 90868, 90869, 90870, 90875, 90876, 90880, 90882, 90885, 90887, 90889, 90899 OR BH_provider

- Dental care: This flagged visits that were attended by a dental health provider, or that occurred in a dental department of a CHC.

    Provider definitions used:

    Provider_type = Dentist, Dental Assistant, Dental Hygienist OR Grouping = Dental Providers

- Telehealth visit: This flagged visits that occurred over telehealth according to the EHR record.

Preparation for Analysis

Finalizing study members and defining proxies for undocumented status

We identified age-date combinations for which patients could be affected by a state Medi-Cal expansion to undocumented adults. We do not capture higher income undocumented immigrants in our study. These allowed us to identify visits ("affected visits") that do not contribute information about immigration status. Using the unaffected visits, we identified whether patients were (1) ever low-income and uninsured / cash pay at a visit, and (2) ever covered by Medi-Cal at a visit. Because of how the data were initially extracted from OCHIN ADVANCE, every study member falls into group (1), group (2), or both. Under the assumption that CHCs are highly motivated to enroll eligible patients in Medi-Cal to get paid for their services, we assign patients who are only in group (1) to the undocumented treatment group. Similarly, patients who are only in group (2) are assigned to the Medi-Cal control group. We examine individuals who occur in both groups to see whether their patterns of

having Medi-Cal appear to correspond with pregnancy episodes, since pregnancy is the most likely reason for an undocumented patient to have Medi-Cal as a payer in a primary care context (as opposed to, say, in a hospital emergency department).

Medi-Cal coverage for low- and moderate-income pregnant individuals is full-scope and available regardless of immigration status. Because this poses a challenge to our payer-based proxy of undocumented status, we identified pregnancy periods during which Medi-Cal coverage did not necessarily provide information about patient immigration status. For the patients in both groups (1) and (2): we place them in the undocumented/treatment group if their payer patterns are consistent with having Medi-Cal during periods of pregnancy and being uninsured when not pregnant; otherwise, they are in the Medi-Cal/control group. Below we describe how we estimated periods of pregnancy. Finally, patients who are ever enrolled in a program that serves undocumented immigrants, such as My Health LA, are assigned to the undocumented/treatment group.

The high certainty treatment assignment subgroup in the Los Angeles County case study consists of patients in group (1) or group (2), but not both.

Using pregnancy data to refine treatment assignments

We created the following pregnancy related variables: if the patient has ever been pregnant during the study period, how many pregnancy episodes, the total number of pregnancies the patient had during the study period, and a flag to identify clinic visits (for any reason) during pregnancy. For this, we used raw pregnancy data that has encounter id, patient id and date admitted for all pregnant encounters of patients who were ever pregnant during the study period.

Processing of the raw pregnancy data consists of the following steps. We generated a variable that estimates the time difference between two consecutive pregnant visits of a patient after sorting the data on the patient identifier and the date of admission. The next steps are based on our assumption that two consecutive encounters of the same pregnancy episode cannot be more than six months (180 days) apart. Using the resulting time difference variable, we generated two other variables. 1. Total number of pregnancies (a patient had during the study period) is the sum of occurrences when the time difference between two consecutive visits for a patient is greater than 180 days. 2. The Nth pregnancy episode is the nth occurrence of having a pregnancy-related visit after a spell of more than 180 days. Next, we created variables for pregnancy start and end dates of each pregnant episode using the date of admission of the first and last encounters and used these dates to flag visits during pregnancy. Finally, if patients in both group (1) and group (2) do not exhibit a pattern of having Medi-Cal during pregnancy episodes and no insurance outside of pregnancy episodes, we assign them to the control group.

Patient-level analytic file

We created a patient-level file for analyzing whether certain health and health care outcomes occurred over the full course of the study period. This file consists of patient-level immunizations and screenings, along with some non-time-varying individual characteristics. We began with raw data files of screenings and immunizations for our study members.

Data cleaning of the raw data of each screening type (colonoscopy, mammogram, and PAP) consists of the following steps. Procedure categories in the raw data are detailed names of procedures, for example, Colonoscopy Stoma Ablation Lesion and Mammogram-Diagnostic Bilateral. We collapsed these into broad categories. The final collapsed categories are Colonoscopy and Referral for Colonoscopy (similar categories for mammograms). Since PAP/HPV is in-clinic, all procedure names are collapsed into just one category. Duplicate orders for canceled orders were dropped. For duplicate orders of a patient with same order date, procedure, and completion

status, a variable for date of completion of the order was created and assigned to the earliest completion date and remaining duplicates were dropped. The final variables retained are patient id, procedure name, date of procedure order, completion status, and date of completion. This data was reshaped to make it unique in "patient ID". Each row consists of information on all the instances of screenings that a patient has undergone. Following the cleaning and reshaping of the individual datasets for colonoscopy, mammogram, and PAP-HPV, we merged the three. The merged data file has information about all the screenings orders for each patient.

The processed immunizations data also have patient id as its unique identifier. The other variables consist of shot dates for three different vaccines: COVID-19, flu (including H1N1, a swine flu), and shingles. We also retained vaccine names for COVID-19 shots. As part of data cleaning, we removed duplicates when a patient had the same vaccine more than once on the same date or sooner than the recommended gap between two doses. We used a 21-day gap for COVID-19 vaccines and a 60-day gap for shingles vaccines. Vaccinations for flu typically start in September when the coming winter's formulation is released. Therefore, duplicates for flu are dropped in two scenarios: if a patient has more than one flu shot before September of the same year or if a patient has a flu shot before September when he/she already took a shot in or after September of the previous year. After dropping the duplicates, these data were reshaped to make them unique in patient id.

After pre-processing, the immunizations data were combined with screenings. A few cohort characteristics of have been added to the data. The cohort variables include demographic characteristics, including patient age as of January 1, 2018, race/ethnicity, sex, preferred language, and selected chronic conditions.

Visit-level analytic file

We created an analogous visit-level file for the same study participants that is longitudinal and contains visit characteristics such as date, level of service, and payer for that visit. The patient-level characteristics are the same as in the patient-level file, except that patient age differs across visit date.

Research Design

We conduct quantitative analyses at either the visit level or at the patient level, depending on the outcome. Visit characteristics, such as whether visits are coded as preventive care, are analyzed at the visit level. Patient characteristics, such having a chronic condition, are analyzed at the patient level, as are health services measured in an ever-received context, such as cancer screenings.

Equation 1 is the estimating equation for visit-level analyses. Binary outcomes, indicated by Y, are visit types. We investigate the likelihood of visits being no-shows, coded for preventive care, for behavioral health or dental care, and whether they took place over telehealth. In this equation, the vector X controls for patient characteristics at the visit: age, sex, race/ethnicity, and preferred language. Of those, only age is variable across visits for a given patient. We include two sets of fixed effects: γ for county (we use clinic in the LA County subgroup), and δ for year. County (clinic) effects control for characteristics of the county (clinic) that do not change over the study period, such as geography. Year effects control for time characteristics affecting all study members, such as the proportion of each year affected by the COVID-19 pandemic. Finally, η and ϵ represent disturbances at the county (clinic) and visit levels.

$$Y_{vct} = \alpha_0 + \beta_1 Undocumented_v + \beta_2 X'_{vt} + \gamma_c + \delta_t + \eta_{ct} + \epsilon_{vct}$$

(Eq. 1)

Equation 2 is an alternate version of Equation 1 with variables *Age26to49* and *Age50plus*; these are binary indicators of the age groups they are named for. Interaction terms of the age groups with *Undocumented* are also included.

$$Y_{vct} = \alpha_0 + \zeta_1 Undocumented_v + \zeta_2 Age26to49_v * Undocumented_v + \zeta_3 Age50plus_v * Undocumented_v \\ + \zeta_4 Age26to49_v + \zeta_5 Age50plus_v + \zeta_6 X'_{vt} + \gamma_c + \delta_t + \eta_{ct} + \epsilon_{vct}$$

(Eq. 2)

Equation 3 shows the estimating equation for patient-level analyses, in which visit-level characteristics are replaced with individual-level characteristics. Patient age in this version is invariant, measured on the first day of the study. The outcomes at the patient level are binary: the presence of chronic conditions, and whether a patient receives certain preventive health services ever during the study period. We include fixed effects for county (clinic), but not year since there is no time component.

$$Y_{ic} = \alpha_0 + \beta_1 Undocumented_i + \beta_2 X'_i + \gamma_c + e_{ic}$$

(Eq. 3)

Equation 4 is the alternate version of Equation 3 with age group dummies and their interactions with *Undocumented*.

$$Y_{ict} = \alpha_0 + \zeta_1 Undocumented_i + \zeta_2 Age26to49_i * Undocumented_i + \zeta_3 Age50plus_i * Undocumented_i \\ + \zeta_4 Age26to49_i + \zeta_5 Age50plus_i + \zeta_6 X'_{it} + \gamma_c + \delta_t + \eta_{ct} + \epsilon_{ict}$$

(Eq. 4)

We implement all analyses as linear probability models. For analyses corresponding to Equations 1 and 3, we interpret the regression-adjusted estimated coefficient $\widehat{\beta_1}$ as the percentage point change in likelihood of an outcome associated with being undocumented.

For analyses corresponding to Equations 2 and 4, we interpret the estimated coefficient $\widehat{\zeta_1}$ as the percentage point change in the likelihood of an outcome associated with being an undocumented young adult ages 19 to 25 (the excluded age group), $\widehat{\zeta_1 + \zeta_2}$ as the same associated with being an undocumented adult ages 26 to 49, and $\widehat{\zeta_1 + \zeta_3}$ as the same associated with being an undocumented adult ages 50 and older.

We cluster standard errors by county (clinic) to account for nonindependence of observations within units, and we indicate when estimates differ significantly from zero at standard levels of confidence. In our discussion, we frequently put raw estimates into context by discussing them as a percentage of the outcome mean. To illustrate, while we call $\widehat{\beta_1}$ the percentage point difference, we refer to $(\widehat{\beta_1} * 100)/mean(Y)$ as the percent difference, with the latter taking into account the relative frequency of the outcome among study visits or patients.

LA County Case Study

The LA County study uses a mixed-methods study design. Our approach is an explanatory sequential design (Figure 1), in which we share early quantitative findings and solicit explanatory feedback from experts from nonprofit organizations, clinics, and the county Department of Health Services (which operates the My Health LA program, described in a later section). We integrate the quantitative analyses and qualitative insights to interpret the findings.

Limitations

Our study has a number of limitations. Our proxy for undocumented status may categorize individuals incorrectly. Our approach is to make reasonable assumptions and try to categorize study members as accurately as possible, but we do not have a way to check our treatment assignments against another source. We learned in the interviews that some immigrants who are not undocumented still have concerns about public-charge or sponsor deeming. As a result, some low-income uninsured individuals we assign to the treatment group may, in fact, be documented immigrants. And while we used patterns of pregnancy coverage to refine the treatment assignments, pregnancy episodes are not documented in an EHR explicitly, and we could incorrectly define some pregnancy episodes due to early termination, miscarriage, or an atypical pattern of receiving prenatal care (a visit very early in the pregnancy followed by a large absence, and then a resumption of care close to the delivery date). These and other examples can lead to incorrect treatment assignment.

We do not have a representative sample of CHCs in the study. The OCHIN ADVANCE data covers 350 CHCs in our statewide study, but clinic clientele vary by region and community focus and our study clinics may differ from non-study clinics in California. Going beyond this, our study members may be different from residents more generally, since not all low-income undocumented immigrants or Medi-Cal patients get health care at CHCs; some will get care from other provider types, and some may not get care at all. We examine our study members in LA County and statewide alongside representative American Community Survey (ACS) samples of undocumented patients/residents, and Medi-Cal covered individuals. The most notable differences are smaller family size among our study members, lower proportions of Asian race and Asian/Pacific Islander language preference, and higher proportions of English language preferring undocumented immigrants compared to the representative samples for both study groups. Also importantly, our qualitative interviews help us understand the experiences of undocumented immigrants in LA county but may not be applicable statewide.

We also compare clinic characteristics for the CHCs in our study to characteristics for all federally qualified health centers in LA County and statewide. The statewide data have a significant number of missing observations, and we only have data on our study members (i.e., not all patients at our study clinics), but it is worth noting that our study clinics are higher proportions white, Black, and Asian races, as well as higher proportions Latino ethnicity (we disaggregate race/ethnicity for the clinic comparisons), compared to the statewide CHCs. Our findings can be extrapolated to other groups of undocumented/Medi-Cal patients, but the strength of the connection will depend on how closely our study members and clinics resemble the communities we extrapolate to.

Appendix B. Core Analyses

The following tables present descriptive statistics and regression output that are discussed in the report. While the regression coefficients shown here are interpretable as percentage point changes, the report describes the findings as changes as percentages relative to the mean. Those figures can be calculated by dividing regression coefficients by the dependent variable mean shown in the bottom row of the analysis tables in this appendix.

Health Needs (Chronic Conditions)

TABLE B1
Summary Statistics: Chronic Conditions – Statewide

	All	Undocumented	Medi-Cal
Any Chronic Condition	0.259 (0.438)	0.257 (0.437)	0.261 (0.439)
Asthma	0.0329 (0.178)	0.0273 (0.163)	0.0384 (0.192)
Diabetes	0.0733 (0.261)	0.0789 (0.270)	0.0678 (0.251)
High Blood Pressure	0.118 (0.323)	0.113 (0.317)	0.123 (0.329)
High Cholesterol	0.122 (0.327)	0.127 (0.333)	0.117 (0.322)
Obesity	0.0957 (0.294)	0.101 (0.301)	0.0906 (0.287)
Heart Disease	0.0107 (0.103)	0.00830 (0.0907)	0.0131 (0.114)
N (unique individuals)	358,250	177,085	181,165

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers who do not cross counties for care during the study period.

NOTES: Means and standard deviations of adults ages 19 and older who established care in an OCHIN participating community health center by 2020. "Any Chronic Condition" refers to having at least one of: asthma, diabetes, high blood pressure, high cholesterol, obesity, or heart disease. Estimates capture chronic conditions listed on a patient's problem list only.

TABLE B2
Analysis of chronic conditions among study members in California

	Any Chronic Condition	Asthma	Diabetes	High Blood Pressure	High Cholesterol	Obesity	Heart Disease
Undocumented	-0.0202 (0.0136)	-0.00397 (0.00227)	-0.00158 (0.00590)	-0.00884 (0.00590)	-0.00889 (0.00935)	-0.00682 (0.00566)	-0.00201** (0.000656)
N (unique individuals)	358,250	358,250	358,250	358,250	358,250	358,250	358,250
Outcome mean	0.259	0.0329	0.0733	0.118	0.122	0.0957	0.0107

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers who do not cross counties for care during the study period.

NOTES: "Any Chronic Condition" refers to having at least one of: asthma, diabetes, high blood pressure, high cholesterol, obesity, or heart disease. Point estimates shown for linear probability regression models of likelihood of chronic conditions listed on a patient's problem list associated with undocumented status. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for county and calendar year. Standard errors, clustered by county, are shown in parentheses.

** p<0.01

TABLE B3
Analysis of chronic conditions among study members in California with effects by age group

	Any Chronic Condition	Asthma	Diabetes	High Blood Pressure	High Cholesterol	Obesity	Heart Disease
Undocumented 19-25	-0.0294*** (0.00544)	-0.00817** (0.00275)	-0.00436* (0.00197)	0.00458 (0.00269)	-0.00944*** (0.00242)	-0.0155*** (0.00376)	0.00169* (0.000652)
Undocumented 26-49	-0.0210 (0.0107)	-0.00434 (0.00209)	-0.011*** (0.00267)	-0.014*** (0.00360)	-0.0124 (0.00643)	-0.00970 (0.00464)	-0.000261 (0.000694)
Undocumented 50+	-0.0104 (0.0249)	-0.00119 (0.00310)	0.0168 (0.0154)	-0.00333 (0.0190)	-0.0000734 (0.0200)	0.00249 (0.00958)	-0.00625** (0.00206)
N (unique individuals)	358,250	358,250	358,250	358,250	358,250	358,250	358,250
Outcome mean	0.259	0.0329	0.0733	0.118	0.122	0.0957	0.0107

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers who do not cross counties for care during the study period.

NOTES: "Any Chronic Condition" refers to having at least one of: asthma, diabetes, high blood pressure, high cholesterol, obesity, or heart disease. Point estimates shown for linear probability regression models of likelihood of chronic conditions listed on a patient's problem list associated with undocumented status. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for county and calendar year. Standard errors, clustered by county, are shown in parentheses.

* p<0.05, ** p<0.01, *** p<0.001

TABLE B4
Summary Statistics: Chronic Conditions – Los Angeles County

	All	Undocumented	Medi-Cal
Any Chronic Condition	0.346 (0.476)	0.388 (0.487)	0.281 (0.449)
Asthma	0.0304 (0.172)	0.0296 (0.170)	0.0316 (0.175)
Diabetes	0.106 (0.308)	0.129 (0.335)	0.0704 (0.256)
High Blood Pressure	0.163 (0.370)	0.177 (0.382)	0.141 (0.348)
High Cholesterol	0.188 (0.390)	0.222 (0.416)	0.133 (0.340)
Obesity	0.162 (0.368)	0.183 (0.387)	0.128 (0.334)
Heart Disease	0.00916 (0.0953)	0.00858 (0.0922)	0.0101 (0.0999)
N (unique individuals)	70,299	43,012	27,287

SOURCE: ADVANCE network electronic health records from OCHIN's Los Angeles County community health centers, 1/1/2018 – 11/24/2022.

NOTES: Means and standard deviations of adults ages 19 and older who established care in an OCHIN participating community health center by 2020. "Any Chronic Condition" refers to having at least one of: asthma, diabetes, high blood pressure, high cholesterol, obesity, or heart disease. Estimates capture chronic conditions listed on a patient's problem list only.

TABLE B5
Analyses of chronic conditions among study members in LA County

	Any Chronic Condition	Asthma	Diabetes	High Blood Pressure	High Cholesterol	Obesity	Heart Disease
Undocumented	0.0260* (0.0106)	0.00410 (0.00362)	0.0209*** (0.00552)	0.00107 (0.00657)	0.0122 (0.00682)	0.0168** (0.00465)	-0.00108 (0.00103)
N (unique individuals)	70,299	70,299	70,299	70,299	70,299	70,299	70,299
Outcome mean	0.346	0.0304	0.106	0.163	0.188	0.162	0.00916

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's LA County community health centers.

NOTES: "Any Chronic Condition" refers to having at least one of: asthma, diabetes, high blood pressure, high cholesterol, obesity, or heart disease. Point estimates shown for linear probability regression models of likelihood of chronic conditions listed on a patient's problem list associated with undocumented status. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for clinic where a patient first got care during the study, and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Analyses of chronic conditions among study members in LA County with effects by age group

	Any Chronic Condition	Asthma	Diabetes	High Blood Pressure	High Cholesterol	Obesity	Heart Disease
Undocumented 19-25	-0.0133 (0.0120)	0.00442 (0.00492)	-0.00414 (0.00446)	0.00267 (0.00444)	-0.0226** (0.00792)	-0.00481 (0.00642)	0.00156** (0.000457)
Undocumented 26-49	0.0279* (0.0120)	0.00379 (0.00309)	-0.00162 (0.00508)	-0.0153** (0.00527)	0.00385 (0.0102)	0.0208** (0.00572)	-0.000308 (0.000934)
Undocumented 50+	0.0493** (0.0163)	0.00592 (0.00535)	0.0635*** (0.00837)	0.0355* (0.0129)	0.0439** (0.0121)	0.0203** (0.00703)	-0.00199 (0.00238)
N (unique individuals)	70,299	70,299	70,299	70,299	70,299	70,299	70,299
Outcome mean	0.346	0.0304	0.106	0.163	0.188	0.162	0.00916

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's LA County community health centers.

NOTES: "Any Chronic Condition" refers to having at least one of: asthma, diabetes, high blood pressure, high cholesterol, obesity, or heart disease. Point estimates shown for linear probability regression models of likelihood of chronic conditions listed on a patient's problem list associated with undocumented status. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for clinic where a patient first got care during the study, and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Patterns of Getting Care (Visit Types)

Summary statistics: visit characteristics among study members in California

	All	Undocumented	Medi-Cal
Preventive	0.559 (0.497)	0.518 (0.500)	0.612 (0.487)
Behavioral health	0.105 (0.307)	0.115 (0.319)	0.0919 (0.289)
Dental	0.0438 (0.205)	0.0439 (0.205)	0.0436 (0.204)
Telehealth	0.280 (0.449)	0.278 (0.448)	0.284 (0.451)
N (visits)	5,460,674	3,097,347	2,363,327

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Means and standard deviations of visit types that occur during the study period 1/1/2018 – 11/24/2022.

Visit characteristics among study members in Los Angeles County

	All	Undocumented	Medi-Cal
Preventive	0.668 (0.471)	0.653 (0.476)	0.711 (0.453)
Behavioral health	0.0657 (0.248)	0.0684 (0.252)	0.0581 (0.234)
Dental	0.0194 (0.138)	0.0174 (0.131)	0.0249 (0.156)
Telehealth	0.247 (0.431)	0.260 (0.438)	0.213 (0.409)
N (visits)	1,077,678	793,876	283,802

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's Los Angeles County community health centers.

NOTES: Means and standard deviations of visit types that occur during the study period 1/1/2018 – 11/24/2022.

Analysis of visit types in California

	Preventive	Behavioral Health	Dental	Telehealth
Undocumented	-0.113***	0.0383*	0.00491	-0.0182
	(0.0147)	(0.0148)	(0.00588)	(0.0142)
2018	(omitted)	(omitted)	(omitted)	(omitted)
2019	-0.0244	-0.0194	0.0376*	0.0175
	(0.0170)	(0.0134)	(0.0163)	(0.0182)
2020	0.00663	-0.0141	-0.00281	0.423***
	(0.0175)	(0.0149)	(0.0103)	(0.0216)
2021	-0.0262	0.00102	0.00215	0.382***
	(0.0156)	(0.0127)	(0.0121)	(0.0175)
2022	-0.0422**	-0.00637	0.00945	0.355***
	(0.0146)	(0.0112)	(0.0113)	(0.0255)
N (visits)	5,460,674	5,460,674	5,460,674	5,460,674
Outcome mean	0.559	0.105	0.0438	0.280

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in participating California community health centers.

NOTES: Point estimates shown for linear probability regression models of likelihood of several visit types associated with undocumented status. Control variables include age at visit, sex, race/ethnicity, preferred language, as well as fixed effects for county and calendar year. Standard errors, clustered by county, are shown in parentheses.

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

TABLE B10
Analysis of visit types in California with effects by age group

	Preventive	Behavioral Health	Dental	Telehealth
Undocumented 19-25	-0.0530*	0.0175	-0.000820	-0.0120
	(0.0197)	(0.00860)	(0.00446)	(0.00840)
Undocumented 26-49	-0.101***	0.0353**	0.00955	-0.0119
	(0.0137)	(0.0119)	(0.00549)	(0.0128)
Undocumented 50+	-0.138***	0.0457*	0.000635	-0.0260
	(0.0185)	(0.0207)	(0.00713)	(0.0179)
2018	(omitted)	(omitted)	(omitted)	(omitted)
2019	-0.0240	-0.0194	0.0376*	0.0177
	(0.0170)	(0.0134)	(0.0162)	(0.0182)
2020	0.00623	-0.0144	-0.00273	0.423***
	(0.0177)	(0.0149)	(0.0103)	(0.0216)
2021	-0.0268	0.000608	0.00219	0.382***
	(0.0157)	(0.0127)	(0.0121)	(0.0175)
2022	-0.0429**	-0.00695	0.00949	0.355***
	(0.0147)	(0.0112)	(0.0114)	(0.0257)
N (visits)	5,460,674	5,460,674	5,460,674	5,460,674
Outcome mean	0.559	0.105	0.0438	0.280

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in participating California community health centers.

NOTES: Point estimates shown for linear probability regression models of likelihood of several visit types associated with undocumented status. Control variables include age at visit, sex, race/ethnicity, preferred language, as well as fixed effects for county and calendar year. Standard errors, clustered by county, are shown in parentheses.

* p<0.05, ** p<0.01, *** p<0.001

TABLE B11
Analysis of visit types in LA County

	Preventive	Behavioral Health	Dental	Telehealth
Undocumented	-0.0717** (0.0207)	0.0306* (0.0115)	-0.00796 (0.00570)	0.0138** (0.00432)
2018	(omitted year)	(omitted year)	(omitted year)	(omitted year)
2019	0.00812 (0.0179)	-0.00449 (0.00678)	0.00930 (0.00834)	-0.000605 (0.00305)
2020	0.0224 (0.0295)	-0.00125 (0.00408)	-0.0148 (0.00919)	0.440*** (0.0508)
2021	-0.0302 (0.0292)	0.00502 (0.00611)	-0.0161 (0.0108)	0.395*** (0.0393)
2022	-0.0502 (0.0326)	-0.00735 (0.0113)	-0.0139 (0.0100)	0.404*** (0.0392)
N (visits)	1,077,678	1,077,678	1,077,678	1,077,678
Outcome mean	0.668	0.0657	0.0194	0.247

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in participating OCHIN's Los Angeles County community health centers.

NOTES: Point estimates shown for linear probability regression models of likelihood of several visit types associated with undocumented status and year effects. Control variables include age at visit, sex, race/ethnicity, preferred language, as well as fixed effects for clinic and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Analysis of visit types in LA County with effects by age group

	Preventive	Behavioral Health	Dental	Telehealth
Undocumented 19-25	-0.104*** (0.0209)	0.0461* (0.0211)	-0.00286 (0.00268)	0.000368 (0.00825)
Undocumented 26-49	-0.0554* (0.0262)	0.0367* (0.0139)	-0.00300 (0.00258)	0.0177** (0.00503)
Undocumented 50+	-0.0804*** (0.0217)	0.0241* (0.00918)	-0.0124 (0.00831)	0.0117* (0.00445)
2018	(omitted)	(omitted)	(omitted)	(omitted)
2019	0.00817 (0.0179)	-0.00438 (0.00678)	0.00936 (0.00837)	-0.000529 (0.00304)
2020	0.0228 (0.0295)	-0.00124 (0.00407)	-0.0147 (0.00915)	0.440*** (0.0508)
2021	-0.0299 (0.0292)	0.00504 (0.00611)	-0.0160 (0.0108)	0.395*** (0.0393)
2022	-0.0500 (0.0326)	-0.00728 (0.0113)	-0.0138 (0.00997)	0.404*** (0.0391)
N (visits)	1,077,678	1,077,678	1,077,678	1,077,678
Outcome mean	0.668	0.0657	0.0194	0.247

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in participating OCHIN's Los Angeles County community health centers.

NOTES: Point estimates shown for linear probability regression models of likelihood of several visit types associated with undocumented status and year effects. Control variables include age at visit, sex, race/ethnicity, preferred language, as well as fixed effects for clinic and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* p<0.05, ** p<0.01, *** p<0.001

Additional Preventive Care Outcomes – Screenings and Vaccines

Analysis of screenings in CA older patients

	Mammogram (women over 50)	Colonoscopy (adults over 45)	Stool colon cancer test (adults over 45)	Shingles Vaccine (adults over 50)
Undocumented	-0.0193 (0.0201)	-0.00742 (0.00388)	-0.00178 (0.0308)	0.00971 (0.0289)
N (unique individuals)	65,183	153,332	153,332	116,285
Outcome mean	0.339	0.0374	0.425	0.277

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Point estimates shown for linear probability regression models of ever receiving the health service outcome during the study period. Note relevant sex/age group listed under each outcome. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for clinic where a patient first got care during the study, and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

Analysis of screenings in LA County older patients

	Mammogram (women over 50)	Colonoscopy (adults over 45)	Stool colon cancer test (adults over 45)	Shingles Vaccine (adults over 50)
Undocumented	0.0165 (0.0173)	0.00129 (0.00415)	0.112*** (0.018)	0.0694* (0.0274)
N (unique individuals)	16,028	35,491	35,491	27,142
Outcome mean	0.231	0.0195	0.534	0.294

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's LA County community health centers.

NOTES: Point estimates shown for linear probability regression models of ever receiving the health service outcome during the study period. Note relevant sex/age group listed under each outcome. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for clinic where a patient first got care during the study, and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* $p<0.05$ *** $p<0.001$

TABLE B15
Analysis of screenings/vaccinations in CA patients

	PAP Screening (women)	Flu Vaccine	COVID-19 Vaccine
Undocumented	0.00937 (0.0247)	-0.0178 (0.0302)	0.0274 (0.0213)
N (unique individuals)	217,214	358,250	358,250
Outcome mean	0.376	0.446	0.550

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Point estimates shown for linear probability regression models of ever receiving the health service outcome during the study period. Note relevant sex group listed under PAP Screening. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for clinic where a patient first got care during the study, and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

TABLE B16
Analysis of screenings/vaccinations in CA patients with effects by age group

	PAP Screening (women)	Flu Vaccine	COVID-19 Vaccine
Undocumented 19-25	-0.0317 (0.0221)	-0.0553* (0.0231)	-0.00796 (0.0152)
Undocumented 26-49	0.0346 (0.0253)	-0.00791 (0.0279)	0.0362 (0.0211)
Undocumented 50+	-0.00849 (0.0224)	-0.0110 (0.0390)	0.0327 (0.0259)
N (unique individuals)	217,214	358,250	358,250
Outcome mean	0.376	0.446	0.550

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Point estimates shown for linear probability regression models of ever receiving the health service outcome during the study period. Note relevant sex group listed under PAP Screening. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for clinic where a patient first got care during the study, and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* $p < 0.05$

TABLE B17
Analysis of screenings/vaccinations – Los Angeles County

	PAP Screening (women)	Flu Vaccine	COVID-19 Vaccine
Undocumented	0.0411** (0.0115)	0.0828*** (0.00941)	0.0841*** (0.0140)
N (unique individuals)	41,747	70,299	70,299
Outcome mean	0.258	0.433	0.487

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's LA County community health centers.

NOTES: Point estimates shown for linear probability regression models of ever receiving the health service outcome during the study period. Note that PAP screening analysis is limited to women. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for clinic where a patient first got care during the study, and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

** p<0.01, *** p<0.001

TABLE B18
Analysis of screenings/vaccinations – Los Angeles County with effects by age group

	PAP Screening (women)	Flu Vaccine	COVID-19 Vaccine
Undocumented 19-25	0.00303 (0.0190)	0.0321* (0.0118)	0.0270 (0.0236)
Undocumented 26-49	0.0635*** (0.0104)	0.0863*** (0.00957)	0.101*** (0.0143)
Undocumented 50+	0.0204 (0.0152)	0.105*** (0.0126)	0.0862*** (0.0166)
N (unique individuals)	41,747	70,299	70,299
Outcome mean	0.258	0.433	0.487

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's LA County community health centers.

NOTES: Point estimates shown for linear probability regression models of ever receiving the health service outcome during the study period. Note that PAP screening analysis is limited to women. Control variables include age as of 1/1/2018, sex, race/ethnicity, preferred language, as well as fixed effects for clinic where a patient first got care during the study, and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* p<0.05, *** p<0.001

Descriptive Statistics about Behavioral Health Services Users

Summary statistics of substance-use-disorder-related behavioral health services users and non-users in California.

	Users of SUD health services	Non-Users of SUD health services
Undocumented	0.730 (0.444)	0.494 (0.500)
Age on Jan 1 2018	40.79 (12.19)	41.90 (14.62)
Ages 19-25	0.0923 (0.289)	0.151 (0.358)
Ages 26 - 49	0.538 (0.499)	0.438 (0.496)
Ages 50+	0.289 (0.453)	0.323 (0.468)
Male sex (binary)	0.613 (0.487)	0.389 (0.488)
Native American/Alaska Native	0.0276 (0.164)	0.00416 (0.0644)
Asian	0.0115 (0.107)	0.0994 (0.299)
Black/African-American	0.171 (0.377)	0.0961 (0.295)
Native Hawaiian/Pacific Islander	0.00652 (0.0805)	0.00583 (0.0762)
White	0.591 (0.492)	0.194 (0.395)
Multiple Races	0.0120 (0.109)	0.00553 (0.0741)
Latino	0.181 (0.385)	0.595 (0.491)
English language	0.984 (0.126)	0.535 (0.499)
Spanish language	0.0145 (0.120)	0.403 (0.491)
Asian/PI languages	0.000502 (0.0224)	0.0456 (0.209)
Other languages	0.00100 (0.0317)	0.0161 (0.126)
N (unique individuals)	1,994	367,897

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members who ever use behavioral health services related to substance-use during the study period 1/1/2018 – 11/24/2022, and for study members who never use substance-use related services. (Frequency of use does not factor into these estimates.)

TABLE B20
Summary statistics of substance use related behavioral health services users and non-users in Los Angeles County

	Users of SUD health services	Non-Users of SUD health services
Undocumented	0.776 (0.418)	0.611 (0.487)
Age on Jan 1 2018	41.28 (12.76)	44.36 (14.28)
Ages 19-25	0.139 (0.346)	0.114 (0.318)
Ages 26 - 49	0.452 (0.499)	0.398 (0.490)
Ages 50+	0.313 (0.465)	0.386 (0.487)
Male sex	0.616 (0.487)	0.405 (0.491)
Native American/Alaska Native	0 (0)	0.00197 (0.0444)
Asian	0.0107 (0.103)	0.0532 (0.225)
Black/African-American	0.388 (0.488)	0.122 (0.327)
Native Hawaiian/Pacific Islander	0.00356 (0.0597)	0.00407 (0.0637)
White	0.285 (0.452)	0.124 (0.329)
Multiple Races	0.0107 (0.103)	0.00313 (0.0558)
Latino	0.302 (0.460)	0.692 (0.462)
English language	0.957 (0.203)	0.449 (0.497)
Spanish language	0.0427 (0.203)	0.533 (0.499)
Asian/PI languages	0 (0)	0.00915 (0.0952)
Other languages	0 (0)	0.00931 (0.0960)
N (unique individuals)	281	70,018

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's Los Angeles County community health centers.

NOTES: SUD refers to substance use disorder. Means and standard deviations of individual characteristics shown for study members who ever use behavioral health services related to substance-use during the study period 1/1/2018 – 11/24/2022, and for study members who never use substance-use related services. (Frequency of use does not factor into these estimates.)

Descriptive Statistics about Telehealth Users, Non-Users

Summary statistics of telehealth users and non-users in California

	Telehealth Users	Telehealth Non-users
Undocumented	0.495	0.495
	(0.500)	(0.500)
Age on Jan 1 2018	41.85	41.90
	(14.38)	(14.64)
Ages 19-25	0.136	0.153
	(0.342)	(0.360)
Ages 26 - 49	0.559	0.522
	(0.497)	(0.500)
Ages 50+	0.306	0.325
	(0.461)	(0.469)
Male sex (binary)	0.389	0.391
	(0.488)	(0.488)
Native American/Alaska Native	0.00367	0.00437
	(0.0604)	(0.0659)
Asian	0.127	0.0952
	(0.333)	(0.294)
Black/African-American	0.0864	0.0979
	(0.281)	(0.297)
Native Hawaiian/Pacific Islander	0.00926	0.00539
	(0.0958)	(0.0732)
White	0.174	0.199
	(0.379)	(0.399)
Multiple Races	0.00606	0.00550
	(0.0776)	(0.0739)
Latino	0.593	0.593
	(0.491)	(0.491)
English language	0.501	0.542
	(0.500)	(0.498)
Spanish language	0.429	0.397
	(0.495)	(0.489)
Asian/PI languages	0.0563	0.0439
	(0.230)	(0.205)
Other languages	0.0139	0.0163
	(0.117)	(0.127)
N (unique individuals)	42,558	327,333

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members who ever use telehealth during the study period 1/1/2018 – 11/24/2022, and for study members who never use telehealth. (Frequency of use does not factor into these estimates.)

TABLE B22
Summary statistics of telehealth users and non-users in Los Angeles County

	Telehealth Users	Telehealth Non-users
Undocumented	0.570	0.614
	(0.495)	(0.487)
Age on Jan 1 2018	40.20	44.51
	(13.28)	(14.29)
Ages 19-25	0.139	0.113
	(0.346)	(0.317)
Ages 26 - 49	0.609	0.495
	(0.488)	(0.500)
Ages 50+	0.252	0.391
	(0.434)	(0.488)
Male sex	0.459	0.404
	(0.498)	(0.491)
Native American/Alaska Native	0.00297	0.00192
	(0.0544)	(0.0438)
Asian	0.0419	0.0535
	(0.200)	(0.225)
Black/African-American	0.0823	0.125
	(0.275)	(0.330)
Native Hawaiian/Pacific Islander	0.00371	0.00408
	(0.0608)	(0.0638)
White	0.210	0.121
	(0.408)	(0.326)
Multiple Races	0.00260	0.00318
	(0.0509)	(0.0563)
Latino	0.656	0.692
	(0.475)	(0.462)
English language	0.531	0.448
	(0.499)	(0.497)
Spanish language	0.453	0.534
	(0.498)	(0.499)
Asian/PI languages	0.00668	0.00922
	(0.0815)	(0.0956)
Other languages	0.0100	0.00925
	(0.0996)	(0.0957)
N (unique individuals)	2,696	67,603

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's Los Angeles County community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members who ever use telehealth during the study period 1/1/018 – 11/24/2022, and for study members who never use telehealth. (Frequency of use does not factor into these estimates.)

How Study Members Compare to California's Undocumented and Medi-Cal-Covered Residents

Variable	Study Members		Residents in the ACS	
	Undocumented	Medi-Cal	Undocumented	Medi-Cal
Age (on 1/1/18 for OCHIN)	42.07 (14.31)	41.73 (14.90)	45.45 (17.06)	34.41 (14.46)
Age 19-25 on Jan 1 2018	0.137 (0.344)	0.165 (0.371)	0.123 (0.328)	0.406 (0.491)
Age 26-49 on Jan 1 2018	0.558 (0.497)	0.494 (0.500)	0.521 (0.500)	0.398 (0.490)
Age 50+ on Jan 1 2018	0.305 (0.460)	0.341 (0.474)	0.356 (0.479)	0.195 (0.396)
Male sex	0.394 (0.489)	0.387 (0.487)	0.387 (0.487)	0.449 (0.497)
Family size	2.515 (1.708)	2.279 (1.674)	4.519 (2.215)	3.645 (1.996)
Asian	0.0613 (0.240)	0.136 (0.343)	0.203 (0.402)	0.158 (0.364)
Black/African-American	0.0682 (0.252)	0.124 (0.330)	0.00895 (0.0942)	0.0573 (0.232)
White	0.141 (0.348)	0.250 (0.433)	0.0548 (0.228)	0.315 (0.465)
Native American /Alaska Native	0.00328 (0.0571)	0.00527 (0.0724)	0.0000760 (0.00872)	0.00375 (0.0611)
Native Hawaiian/Pacific Islander	0.00517 (0.0717)	0.00649 (0.0803)	0.00293 (0.0540)	0.00460 (0.0676)
Multiple Races	0.00432 (0.0656)	0.00678 (0.0821)	0.00917 (0.0953)	0.0400 (0.196)
Latino	0.717 (0.451)	0.472 (0.499)	0.721 (0.448)	0.421 (0.494)
English language	0.402 (0.490)	0.671 (0.470)	0.0531 (0.224)	0.542 (0.498)
Spanish language	0.571 (0.495)	0.235 (0.424)	0.693 (0.461)	0.302 (0.459)
Asian/PI language	0.0202 (0.141)	0.0700 (0.255)	0.208 (0.406)	0.125 (0.330)
Other language	0.00720 (0.0846)	0.0247 (0.155)	0.0457 (0.209)	0.0306 (0.172)
N (unique individuals)	183,159	186,732	16,655	89,841

SOURCES: OCHIN Patient Demographics Data and the 2021 American Community Survey.

NOTES: The undocumented immigrant flag for ACS data has been obtained from the calculations using the American Community Survey use a proxy indicator of undocumented status (see Bohn et al. 2017 for details).

Summary Statistics in Los Angeles County: Study members in OCHIN data and comparable residents in the American Community Survey

Variable	Study Members		Residents in the ACS	
	Undocumented	Medi-Cal	Undocumented	Medi-Cal
Age (on 1/1/18 for OCHIN)	45.64 (13.55)	42.30 (15.14)	45.55 (16.44)	34.70 (14.49)
Age 19-25 on Jan 1 2018	0.0793 (0.270)	0.169 (0.375)	0.106 (0.308)	0.393 (0.489)
Age 26-49 on Jan 1 2018	0.526 (0.499)	0.459 (0.498)	0.536 (0.499)	0.409 (0.492)
Age 50+ on Jan 1 2018	0.395 (0.489)	0.372 (0.483)	0.358 (0.479)	0.198 (0.398)
Male sex	0.385 (0.487)	0.439 (0.496)	0.397 (0.489)	0.453 (0.498)
Family size	2.271 (1.532)	1.841 (1.385)	4.482 (2.296)	3.767 (2.044)
Asian	0.0495 (0.217)	0.0587 (0.235)	0.179 (0.383)	0.154 (0.361)
Black/African-American	0.0595 (0.237)	0.223 (0.417)	0.00731 (0.0852)	0.0732 (0.261)
White	0.0839 (0.277)	0.188 (0.390)	0.0572 (0.232)	0.218 (0.413)
Native American /Alaska Native	0.00151 (0.0388)	0.00268 (0.0517)	0 (0)	0.00177 (0.0421)
Native Hawaiian/Pacific Islander	0.00393 (0.0626)	0.00429 (0.0653)	0.000853 (0.0292)	0.00219 (0.0468)
Multiple Races	0.00279 (0.0527)	0.00374 (0.0610)	0.00638 (0.0796)	0.0340 (0.181)
Latino	0.799 (0.401)	0.520 (0.500)	0.749 (0.433)	0.517 (0.500)
English language	0.292 (0.455)	0.701 (0.458)	0.0437 (0.204)	0.429 (0.495)
Spanish language	0.690 (0.462)	0.279 (0.448)	0.729 (0.445)	0.403 (0.490)
Asian/PI language	0.00916 (0.0953)	0.00905 (0.0947)	0.180 (0.384)	0.126 (0.331)
Other language	0.00825 (0.0905)	0.0109 (0.104)	0.0477 (0.213)	0.0422 (0.201)
N (unique individuals)	43,012	27,287	6,104	25,845

SOURCES: OCHIN Patient Demographics Data, and the 2021 American Community Survey (ACS)

NOTES: ACS data are restricted to California residents with incomes under 138 percent of federal poverty to align with the OCHIN study sample. The undocumented immigrant flag for ACS data has been obtained from the calculations using the American Community Survey use a proxy indicator of undocumented status (see Bohn et al. 2017 for details). ACS respondents flagged as undocumented who report Medi-Cal are assigned to the undocumented group.

How Study Clinics Compare to California's Primary Care Clinics

Summary Statistics in California: Study clinics in OCHIN data and statewide primary care clinics in the California Department of Health Care Access and Information (HCAI) Primary Care Clinic Annual Utilization Data

Variable	Study Clinics	HCAI Clinics
Income <= 138% of FPL	1 (0)	0.615 (0.276)
White	0.750 (0.241)	0.611 (0.266)
Black/African-American	0.115 (0.158)	0.0569 (0.0744)
Native American/Alaska Native	0.00757 (0.0189)	0.0157 (0.0588)
Asian	0.109 (0.185)	0.0782 (0.151)
Native Hawaiian/Pacific Islander	0.00975 (0.0329)	(unavailable)
Multiple Races	0.00816 (0.00944)	0.0287 (0.0624)
Latino	0.601 (0.276)	0.545 (0.248)
Age < 20	0.0398 (0.0372)	0.266 (0.161)
Ages 20 - 34	0.317 (0.0823)	0.259 (0.166)
Ages 35 - 44	0.217 (0.0371)	0.132 (0.0408)
Ages 45 - 64	0.367 (0.0875)	0.228 (0.102)
Ages 65+	0.0588 (0.0428)	0.0912 (0.0838)
Male sex	0.391 (0.114)	0.377 (0.111)
Medi-Cal payer	0.590 (0.165)	0.621 (0.189)
Medicare payer	0.0260 (0.0296)	0.0734 (0.0754)
Private insurance	0.0180 (0.0199)	0.110 (0.0993)
Self-pay	0.366 (0.168)	0.155 (0.147)
Other public payer	0.0000703 (0.000342)	0.0407 (0.101)
LA County location	0.193 (0.394)	0.243 (0.429)
Number of clinics	226	1,172

SOURCES: OCHIN Patient Demographics Data, California Department of Health Care Access and Information (HCAI) Primary Care Clinic Annual Utilization Data.

NOTES: The table presents means and standard deviations for various clinic-level demographic characteristics from study clinics in the OCHIN data and primary care clinics in the HCAI data. The HCAI data are only reported for known categories; poverty is coded as unknown for almost one-third of clinic means (mean=0.29, SD=0.3), race is unknown for over one-fifth (mean=0.22, SD=0.21), and ethnicity is unknown for about one-eight (mean=0.13, SD=0.2). Race and ethnicity variables are independent (i.e., Latino individuals can have any race) in the OCHIN study data in this table to be more comparable to the HCAI characteristics, but our analyses use a combined race/ethnicity variable in which Latino ethnicity supersedes race categories. Additionally, we use an early snapshot of the OCHIN data, which are longitudinal, and capture only a subset of the 350 study clinics.

Summary Statistics in Los Angeles: Study clinics in OCHIN data and statewide primary care clinics in the California Department of Health Care Access and Information (HCAI) Primary Care Clinic Annual Utilization Data

Variable	Study Clinics	HCAI Clinics
Income <= 138% of FPL	1 (0)	0.695 (0.274)
White	0.796 (0.172)	0.642 (0.262)
Black/African-American	0.134 (0.178)	0.0773 (0.0916)
Native American/Alaska Native	0.00406 (0.004)	0.0133 (0.0458)
Asian	0.0567 (0.0574)	0.0699 (0.161)
Native Hawaiian/Pacific Islander	0.00471 (0.00412)	(unavailable)
Multiple Races	0.00447 (0.00499)	0.0227 (0.0413)
Latino (binary)	0.695 (0.223)	0.633 (0.244)
Age < 20	0.0278 (0.0147)	0.265 (0.189)
Ages 20 - 34	0.252 (0.0589)	0.252 (0.179)
Ages 35 - 44	0.216 (0.0407)	0.132 (0.0503)
Ages 45 - 64	0.436 (0.0500)	0.249 (0.126)
Ages 65+	0.0688 (0.0349)	0.0752 (0.0744)
Male sex	0.406 (0.0880)	0.382 (0.120)
Medi-Cal	0.520 (0.186)	0.635 (0.202)
Medicare	0.0208 (0.0154)	0.0525 (0.0505)
Private insurance	0.0100 (0.0105)	0.0844 (0.0835)
Self-pay	0.449 (0.187)	0.124 (0.141)
Other public payer	0.000198 (0.000600)	0.104 (0.131)
Number of clinics	29	296

SOURCES: OCHIN Patient Demographics Data, California Department of Health Care Access and Information Primary Care Clinic Annual Utilization Data.

NOTES: The table presents means and standard deviations for various clinic-level demographic characteristics from study clinics in the OCHIN data and primary care clinics in the HCAI data. The HCAI data are only reported for known categories; poverty is coded as unknown for over one-fifth of clinics means (mean=0.22, SD=0.29), race is unknown for about one-fifth (mean=0.19, SD=0.2), and ethnicity is unknown for about 8 percent (mean=0.08, SD=0.11). Race and ethnicity variables are independent (i.e., Latino individuals can have any race) in the OCHIN study data in this table to be more comparable to the HCAI characteristics, but our analyses use a combined race/ethnicity

variable in which Latino ethnicity supersedes race categories. Additionally, we use an early snapshot of the OCHIN data, which are longitudinal, and capture only a subset of the 41 study clinics.

Descriptive Statistics by Medi-Cal Expansion Age Groups

Summary statistics of young adults 19-25 in California

	All	Undocumented	Medi-Cal
Undocumented	0.450	1	0
	(0.497)	(0)	(0)
Age on Jan 1 2018	21.52	21.18	21.80
	(2.601)	(2.702)	(2.481)
Male sex	0.326	0.351	0.306
	(0.469)	(0.477)	(0.461)
Native American/Alaska Native	0.00392	0.00342	0.00433
	(0.0625)	(0.0584)	(0.0656)
Asian	0.0822	0.0711	0.0913
	(0.275)	(0.257)	(0.288)
Black/African-American	0.0911	0.0786	0.101
	(0.288)	(0.269)	(0.302)
Native Hawaiian/Pacific Islander	0.00449	0.00454	0.00446
	(0.0669)	(0.0672)	(0.0666)
White	0.166	0.136	0.191
	(0.372)	(0.343)	(0.393)
Multiple Races	0.00804	0.00721	0.00872
	(0.0893)	(0.0846)	(0.0930)
Latino	0.644	0.699	0.599
	(0.479)	(0.459)	(0.490)
English language	0.773	0.701	0.832
	(0.419)	(0.458)	(0.374)
Spanish language	0.197	0.286	0.125
	(0.398)	(0.452)	(0.330)
Asian/PI languages	0.0144	0.00776	0.0199
	(0.119)	(0.0878)	(0.140)
Other languages	0.0159	0.00589	0.0240
	(0.125)	(0.0765)	(0.153)
N (unique individuals)	55,857	25,114	30,743

SOURCE: ADVANCE network data for low-income patients ages 19-25 who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members.

Summary statistics of mid-age adults 26-49 in California

	All	Undocumented	Medi-Cal
Undocumented	0.525	1	0
	(0.499)	(0)	(0)
Age on Jan 1 2018	37.18	37.78	36.52
	(6.907)	(6.714)	(7.055)
Male sex	0.380	0.384	0.375
	(0.485)	(0.486)	(0.484)
Native American/Alaska Native	0.00415	0.00301	0.00542
	(0.0643)	(0.0548)	(0.0734)
Asian	0.0774	0.0421	0.117
	(0.267)	(0.201)	(0.321)
Black/African-American	0.0895	0.0544	0.128
	(0.285)	(0.227)	(0.334)
Native Hawaiian/Pacific Islander	0.00494	0.00370	0.00630
	(0.0701)	(0.0607)	(0.0792)
White	0.185	0.115	0.262
	(0.388)	(0.319)	(0.440)
Multiple Races	0.00578	0.00406	0.00768
	(0.0758)	(0.0636)	(0.0873)
Latino	0.633	0.777	0.473
	(0.482)	(0.416)	(0.499)
English language	0.505	0.331	0.699
	(0.500)	(0.470)	(0.459)
Spanish language	0.449	0.653	0.224
	(0.497)	(0.476)	(0.417)
Asian/PI languages	0.0278	0.0103	0.0473
	(0.165)	(0.101)	(0.212)
Other languages	0.0175	0.00627	0.0298
	(0.131)	(0.0790)	(0.170)
N (unique individuals)	194,487	102,175	92,312

SOURCE: ADVANCE network data for low-income patients ages 26-49 who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members.

Summary statistics of older adults 50+ in California

	All	Undocumented	Medi-Cal
Undocumented	0.467	1	0
	(0.499)	(0)	(0)
Age on Jan 1 2018	59.09	59.31	58.90
	(7.323)	(7.627)	(7.039)
Male sex	0.438	0.432	0.443
	(0.496)	(0.495)	(0.497)
Native American/Alaska Native	0.00467	0.00369	0.00553
	(0.0682)	(0.0606)	(0.0741)
Asian	0.142	0.0920	0.185
	(0.349)	(0.289)	(0.389)
Black/African-American	0.111	0.0887	0.130
	(0.314)	(0.284)	(0.336)
Native Hawaiian/Pacific Islander	0.00793	0.00814	0.00774
	(0.0887)	(0.0899)	(0.0876)
White	0.227	0.190	0.260
	(0.419)	(0.393)	(0.439)
Multiple Races	0.00405	0.00349	0.00454
	(0.0635)	(0.0590)	(0.0672)
Latino	0.504	0.614	0.407
	(0.500)	(0.487)	(0.491)
English language	0.480	0.398	0.553
	(0.500)	(0.489)	(0.497)
Spanish language	0.418	0.549	0.303
	(0.493)	(0.498)	(0.459)
Asian/PI languages	0.0883	0.0439	0.127
	(0.284)	(0.205)	(0.333)
Other languages	0.0138	0.00949	0.0175
	(0.116)	(0.0969)	(0.131)
N (unique individuals)	119,547	55,870	63,677

SOURCE: ADVANCE network data for low-income patients ages 50+ who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members.

Summary statistics of young adults 19-25 in Los Angeles County

	All	Undocumented	Medi-Cal
Undocumented	0.425	1	0
	(0.494)	(0)	(0)
Age on Jan 1 2018	21.65	21.51	21.75
	(2.514)	(2.588)	(2.453)
Male sex	0.368	0.358	0.375
	(0.482)	(0.480)	(0.484)
Native American/Alaska Native	0.00125	0.00147	0.00108
	(0.0353)	(0.0383)	(0.0329)
Asian	0.0416	0.0428	0.0408
	(0.200)	(0.202)	(0.198)
Black/African-American	0.144	0.111	0.168
	(0.351)	(0.314)	(0.374)
Native Hawaiian/Pacific Islander	0.00299	0.00264	0.00325
	(0.0546)	(0.0513)	(0.0569)
White	0.123	0.105	0.136
	(0.328)	(0.307)	(0.343)
Multiple Races	0.00386	0.00440	0.00347
	(0.0620)	(0.0662)	(0.0588)
Latino	0.684	0.733	0.647
	(0.465)	(0.442)	(0.478)
English language	0.813	0.731	0.873
	(0.390)	(0.443)	(0.333)
Spanish language	0.181	0.262	0.122
	(0.385)	(0.440)	(0.327)
Asian/PI languages	0.00224	0.00322	0.00152
	(0.0473)	(0.0567)	(0.0389)
Other languages	0.00349	0.00381	0.00325
	(0.0590)	(0.0616)	(0.0569)
N (unique individuals)	8,025	3,412	4,613

SOURCE: ADVANCE network data for low-income patients ages 19-25 who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's Los Angeles County community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members.

Summary statistics of mid-age adults 26-49 in Los Angeles County

	All	Undocumented	Medi-Cal
Undocumented	0.643	1	0
	(0.479)	(0)	(0)
Age on Jan 1 2018	38.21	39.17	36.47
	(6.898)	(6.545)	(7.174)
Male sex	0.412	0.391	0.451
	(0.492)	(0.488)	(0.498)
Native American/Alaska Native	0.00228	0.00150	0.00367
	(0.0477)	(0.0388)	(0.0605)
Asian	0.0391	0.0329	0.0502
	(0.194)	(0.178)	(0.218)
Black/African-American	0.124	0.0533	0.252
	(0.330)	(0.225)	(0.434)
Native Hawaiian/Pacific Islander	0.00276	0.00243	0.00335
	(0.0525)	(0.0493)	(0.0578)
White	0.130	0.0775	0.226
	(0.337)	(0.267)	(0.418)
Multiple Races	0.00344	0.00265	0.00487
	(0.0586)	(0.0515)	(0.0696)
Latino	0.698	0.830	0.460
	(0.459)	(0.376)	(0.498)
English language	0.460	0.270	0.803
	(0.498)	(0.444)	(0.398)
Spanish language	0.529	0.720	0.183
	(0.499)	(0.449)	(0.387)
Asian/PI languages	0.00481	0.00495	0.00455
	(0.0692)	(0.0702)	(0.0673)
Other languages	0.00658	0.00535	0.00878
	(0.0808)	(0.0730)	(0.0933)
N (unique individuals)	35,132	22,606	12,526

SOURCE: ADVANCE network data for low-income patients ages 26-49 who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's Los Angeles County community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members.

Summary statistics of young adults 50+ in Los Angeles County

	All	Undocumented	Medi-Cal
Undocumented	0.626	1	0
	(0.484)	(0)	(0)
Age on Jan 1 2018	59.00	59.10	58.83
	(6.993)	(7.240)	(6.554)
Male sex	0.409	0.382	0.455
	(0.492)	(0.486)	(0.498)
Native American/Alaska Native	0.00177	0.00153	0.00217
	(0.0420)	(0.0391)	(0.0465)
Asian	0.0746	0.0730	0.0773
	(0.263)	(0.260)	(0.267)
Black/African-American	0.116	0.0574	0.213
	(0.320)	(0.233)	(0.410)
Native Hawaiian/Pacific Islander	0.00608	0.00618	0.00591
	(0.0777)	(0.0784)	(0.0767)
White	0.117	0.0883	0.164
	(0.321)	(0.284)	(0.370)
Multiple Races	0.00258	0.00265	0.00246
	(0.0507)	(0.0514)	(0.0496)
Latino	0.683	0.771	0.535
	(0.465)	(0.420)	(0.499)
English language	0.332	0.234	0.497
	(0.471)	(0.424)	(0.500)
Spanish language	0.636	0.737	0.468
	(0.481)	(0.440)	(0.499)
Asian/PI languages	0.0167	0.0159	0.0180
	(0.128)	(0.125)	(0.133)
Other languages	0.0145	0.0130	0.0169
	(0.119)	(0.113)	(0.129)
N (unique individuals)	27,142	16,994	10,148

SOURCE: ADVANCE network data for low-income patients ages 50+ who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's Los Angeles County community health centers.

NOTES: Means and standard deviations of individual characteristics shown for study members.

Appendix C. Additional Analyses

This section contains additional analyses and findings that we do not cover in the report.

Dental care use is similar across study groups

Dental care is not available at every CHC, which is part of why dental care makes up only a small proportion of study visits. About 4.4 percent of visits statewide, and less than 2 percent in LA County, are for dental care. Appendix Figure C1 shows that, despite overall low rates, there is a decline in dental care as a percentage of visits starting around 2020 in LA County. This is not especially surprising, since dental care needs to be delivered in person. Undocumented status is not associated with differential likelihood of getting dental care at a CHC in either analysis; both undocumented and Medi-Cal patients have similarly low rates of getting dental care at CHCs. Analyses with age group estimates similarly find that undocumented status is not associated with likelihood of dental care.

FIGURE C1

A similar percentage of visits for undocumented patients and Medi-Cal patients are for dental care in Los Angeles County
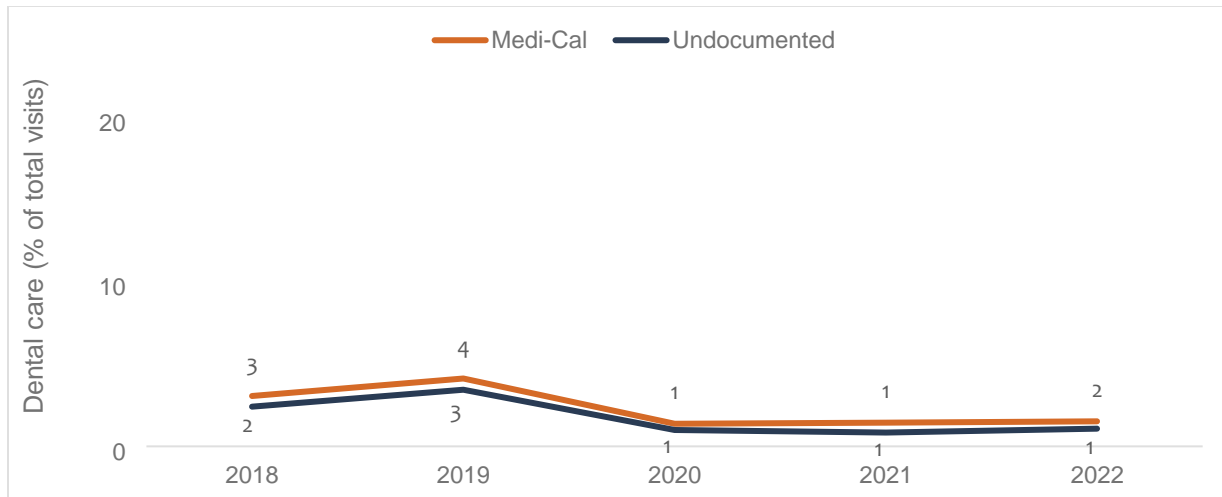
SOURCE: ADVANCE network electronic health records from OCHIN's Los Angeles County community health centers.

NOTES: Trends of annual percent of dental visits presented for undocumented and Medi-Cal patients at an OCHIN member community health center in Los Angeles County.

	Dental Care	
	Statewide	LA County
All 19+	(ne)	(ne)
19-25	(ne)	(ne)
26-49	(ne)	(ne)
50+	(ne)	(ne)

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California and LA County community health centers.

NOTES: "(ne)" indicates no (significant) effect from regression-adjusted estimates of the coefficient on undocumented status. Regressions are linear probability models of the likelihood of dental visits associated with undocumented status. Control variables include age at visit, sex, race/ethnicity, preferred language, as well as fixed effects for county (clinic in LA County) and calendar year. Standard errors are clustered by county (clinic). Effects are considered significant if they differ from 0 at the 95-percent level of confidence or greater.

Undocumented patients more likely to have no-show visits

The vast majority of scheduled visits—about 99.5 percent—in our statewide study took place successfully, but a small proportion (0.5%) did not, primarily due to patient no-shows. We find that being undocumented is associated with about a 0.06 percentage point, or 11 percent, higher likelihood of missing a visit compared to Medi-Cal patients statewide. This is in contrast to past PPIC work finding that undocumented immigrants report missing health care at similar rates to other immigrants (Cha and McConville 2021a). In Los Angeles, the rate of no-show visits (0.2%) is lower than statewide but is more concentrated among undocumented patients. Being undocumented is associated with a 0.1 percent higher likelihood of missing a visit, which translates to a 49 percent greater likelihood, compared to Medi-Cal patients. These effects are concentrated among younger age groups of undocumented immigrants. Table 2 shows that the magnitude and significance of the no-show association declines with age, and there is no significant association for undocumented adults ages 50 and older. While we do not know what drives differences by age, older adults are of course more likely to be retired. Having more time may make missing a clinic appointment a less common occurrence. Another possibility is that older adults may have more pressing medical needs, leading them to prioritize making their appointments more than younger age groups. We omit no-show visits for our main analyses.

Analysis of no-show visits in California and Los Angeles County community health centers

	California Statewide	Los Angeles County
Undocumented	0.000614* (0.000281)	0.00116* (0.000448)
2018	(omitted)	(omitted)
2019	0.000427 (0.00115)	0.000711 (0.000381)
2020	0.00403 (0.00241)	0.00102 (0.00122)
2021	0.00498* (0.00238)	0.000922 (0.000608)
2022	0.00282 (0.00192)	-0.000384 (0.000611)
N (visits)	5,490,084	1,080,239
Outcome mean	0.00536	0.00237

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN California or Los Angeles County community health centers.

NOTES: Point estimates shown for linear probability regression models of likelihood of a visit resulting in a no-show associated with undocumented status and year effects. Control variables include age at scheduled visit, sex, race/ethnicity, preferred language, as well as fixed effects for county (clinic in LA County) and calendar year. Standard errors, clustered by county (clinic in LA County), are shown in parentheses.

* $p < 0.05$

Analysis of no-show visits in California and Los Angeles County community health centers with effects by age group

	California Statewide	Los Angeles County
Undocumented 19-25	0.00133** (0.000476)	0.00255* (0.000971)
Undocumented 26-49	0.000788* (0.000306)	0.00152* (0.000438)
Undocumented 50+	0.000306 (0.000322)	0.000777 (0.000445)
2018	(omitted)	(omitted)
2019	0.000433 (0.00115)	0.000712 (0.000382)
2020	0.00403 (0.00241)	0.00103 (0.00122)
2021	0.00497* (0.00237)	0.000929 (0.000609)
2022	0.00281 (0.00191)	-0.000365 (0.000612)
N	5,490,084	1,080,239
Outcome mean	0.00536	0.00237

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are likely to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's California or Los Angeles County community health centers.

NOTES: Point estimates shown for linear probability regression models of likelihood of a visit resulting in a no-show associated with undocumented status and year effects. Control variables include age at scheduled visit, sex, race/ethnicity, preferred language, as well as fixed effects for county (clinic in LA County) and calendar year. Standard errors, clustered by county (clinic in LA County), are shown in parentheses.

* p<0.05 **p<0.01

Interviews highlight clinics' role in connecting patients to non-health safety net programs

In addition to describing barriers to care and weighing in on our quantitative findings, interview participants shared thoughts on how CHCs, the county Department of Health Services, and patients themselves contribute to undocumented immigrants' experiences in the health care system. Navigating the social safety net is an essential role that CHCs play for their patients, many of whom are very low income. CHCs connect individuals to resources, including conducting enrollment and recertification for health insurance and social safety net programs such as CalFresh (federally known as the Supplemental Nutrition Assistance Program), and providing referrals to housing programs. One interviewee's CHC has an account for the new Benefits Cal portal, which allows staff to help patients apply for multiple safety net programs in one place. Despite their ongoing commitments, one CHC staff member we spoke with expressed a desire to take on more, not fewer, services for their patients. They had been approached in the past for tax filing help and for help finding housing.

Analysis of a group in LA with high-certainty assignments support some, but not all findings

In the main analyses, we disaggregate likely-undocumented patients from Medi-Cal patients who are unlikely to be covered through state expansions of undocumented immigrants to determine our analysis groups, but we have varying levels of confidence about the assignment of individual study members. We conduct some analyses subset to LA County study members about whom we have a high level of confidence. This group is not necessarily more representative of low-income Angelinos than the main LA County study group, and the analyses should be considered supplements, rather than competitors, for our main study findings. More information about how we identified this subgroup is in Technical Appendix A.

There are 573,193 visits that we analyze for the high-certainty subgroup. About 71 percent of the visits were for preventive care. In this group, undocumented status is not generally associated with a different likelihood of having a preventive care visit, compared to Medi-Cal patients, though a negative association exists for older undocumented immigrants. Behavioral health visits make up a smaller proportion of visits, 3.3 percent, compared to the main analyses. Undocumented status is associated with a 2.2 percentage point increase in likelihood of having a behavioral health visit, which translates to a 66.7 percent increased likelihood of receiving behavioral health services, and this effect is concentrated among middle and older age undocumented patients. Likelihood of receiving dental care, which makes up 2.4 percent of visits, is not significantly associated with undocumented status. Finally, telehealth makes up about 22.9 percent of visits in the subgroup, which is similar to the same figure for the main LA study group. We estimate a 2.2 percentage point increase in likelihood of having a telehealth visit associated with undocumented status, or a 9.6 percent increase—this is a larger effect than the one we found in the main results. The telehealth findings, as in the main results, are concentrated among middle and older age groups of undocumented patients. Overall, these analyses support our main findings on behavioral health, dental care, and telehealth, with the caveat that in the high-certainty group, the negative association with preventive care is only significant for older undocumented immigrants.

TABLE C4
Analysis of visits for study members in LA County with high-certainty treatment assignment

	Preventive	Behavioral Health	Dental	Telehealth
Undocumented	-0.0334 (0.0210)	0.0224* (0.00946)	-0.0185 (0.0113)	0.0218*** (0.00582)
2018	(omitted)	(omitted)	(omitted)	(omitted)
2019	-0.000428 (0.0180)	-0.00232 (0.00431)	0.0111 (0.00994)	0.0000250 (0.00184)
2020	0.0237 (0.0288)	-0.000120 (0.00459)	-0.0186 (0.0114)	0.465*** (0.0470)
2021	-0.0299 (0.0309)	0.00738 (0.00546)	-0.0210 (0.0140)	0.397*** (0.0368)
2022	-0.0529 (0.0349)	0.00113 (0.00711)	-0.0173 (0.0133)	0.383*** (0.0257)
N (visits)	573,193	573,193	573,193	573,193
Outcome mean	0.710	0.0329	0.0242	0.229

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are almost certain to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's Los Angeles County community health centers.

NOTES: Point estimates shown for linear probability regression models of likelihood of several visit types associated with undocumented status and year effects. Control variables include age at visit, sex, race/ethnicity, preferred language, as well as fixed effects for clinic and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* p<0.05, *** p<0.001

TABLE C5
Analysis of visits for study members in LA County with high-certainty treatment assignment with effects by age group

	Preventive	Behavioral Health	Dental	Telehealth
Undocumented 19-25	-0.0620 (0.0318)	0.0533 (0.0319)	-0.000814 (0.00303)	0.0119 (0.0158)
Undocumented 26-49	-0.0139 (0.0265)	0.0279* (0.0126)	-0.0119 (0.00722)	0.0238** (0.00711)
Undocumented 50+	-0.0549* (0.0246)	0.0146** (0.00526)	-0.0270 (0.0163)	0.0164** (0.00519)
2018	(omitted)	(omitted)	(omitted)	(omitted)
2019	-0.000823 (0.0180)	-0.00210 (0.00421)	0.0112 (0.00995)	-0.000214 (0.00191)
2020	0.0227 (0.0287)	0.000286 (0.00450)	-0.0186 (0.0113)	0.464*** (0.0471)
2021	-0.0319 (0.0308)	0.00787 (0.00522)	-0.0211 (0.0140)	0.396*** (0.0369)
2022	-0.0555 (0.0347)	0.00178 (0.00682)	-0.0174 (0.0132)	0.381*** (0.0256)
N (visits)	573,193	573,193	573,193	573,193
Outcome mean	0.710	0.0329	0.0242	0.229

SOURCE: ADVANCE network data for low-income patients ages 19 and older who are almost certain to be undocumented or who are enrolled in Medi-Cal and get care in OCHIN's Los Angeles County community health centers.

NOTES: Point estimates shown for linear probability regression models of likelihood of several visit types associated with undocumented status and year effects. Control variables include age at visit, sex, race/ethnicity, preferred language, as well as fixed effects for clinic and calendar year. Standard errors, clustered by clinic, are shown in parentheses.

* p<0.05, **p<0.01,*** p<0.001

Appendix D. The Federal Public-Charge Rule

The federal public-charge rule allows immigration officers to designate certain immigrants as a 'public charge' based on their use of certain public benefits, jeopardizing their entry visa approval, admission to the United States, or later regularization to legal permanent residency (known as getting one's 'green card').

The previous presidential administration proposed changes that expanded public charge determinations to consider several new criteria, including the use of various non-cash public benefits. This proposed rule ("2019 rule") was published a regulation on August 14, 2019, took effect on February 24, 2020, and remained in effect until March 9, 2021, when the Biden administration stopped applying this rule and reverted to longstanding 1999 public charge policy. The administration then implemented a new public charge regulation on December 23, 2022, that that codifies much of the 1999 public charge policy and strengthens certain protections for individuals and families who may be eligible for public benefits.

The 1999 policy and current version of the public-charge rule affect very few immigrants, while relatively few immigrants were both subject to public charge and eligible for the public benefits considered under the 2019 rule. But 2017 media reports about a possible rule change and proposed changes in 2018 produced widespread concern in immigrant communities. Even the current rule–which made important changes and clarifications favorable to immigrants–is complicated and confusing, and it has been the subject of misinformation. Immigrants, including undocumented immigrants, often do not understand the rule or its implications.

Appendix E. Preferred Languages in Los Angeles County

English and Spanish are the preferred languages of the vast majority of Los Angeles County study members, but there are many other represented languages. Study members have the following additional preferred languages (asterisks * indicate Medi-Cal threshold languages in the county):

Albanian
Amharic
Arabic*
Armenian*
Bengali
Bulgarian
Burmese
Catalan/Valencian
Chinese*
Czech
French
German
Greek
Gujarati
Haitian/Haitian Creole
Hebrew
Hindi
Hungarian
Indonesian
Italian
Japanese
Khmer*
Korean*
Mongolian
Nepali

Norwegian
Oromo
Persian*
Polish
Portuguese
Punjabi
Romanian/Moldavian/Moldovan
Russian*
Serbian
Sinhala/Sinhalese
Soninke
Swahili
Swedish
Tagalog*
Thai
Tibetan
Tigre
Tigrinya
Turkish
Ukrainian
Urdu
Vietnamese*
Uzbek
Zapotec

Appendix F. Semi-Structured Interviews

Our team conducted in-depth interviews about undocumented immigrants in Los Angeles County with seven experts. Five are policy or program directors, and two are clinical directors. All of these interviews were virtual, conducted by Zoom, and each lasted approximately one hour. PPIC researchers conducted each interview using a series of questions and prompts; all but one interview was conducted and coded by two researchers, and one interview had one researcher. The interviews were semi-structured in that we allowed discussions to evolve organically according to the interviewees' preferences. We coded the resulting interview notes for themes, and our research team decided findings through discussions. The list of individuals interviewed and the informed consent language we shared with participants follow.

Individuals Interviewed

- Caryn Cortez (Behavioral Health Director, Clinica Romero)
- Sarah Dar (Director of Health & Public Benefits Policy, California Immigrant Policy Center)
- Anna Gorman (Chief Operating Officer, Community Programs, Los Angeles County Department of Health Services)
- Eddie Hu (Program Director, Asian Resources, Inc.)
- Louise McCarthy (President & CEO, Community Clinic Association of Los Angeles County)
- Doreena Wong (Policy Director, Asian Resources, Inc.)
- Amanda Yang (Client Service Director, Herald Christian Health Center)

Informed Consent

The Public Policy Institute of California (PPIC), a non-profit research organization, is conducting a study on the role of community clinics in serving undocumented immigrants. The majority of undocumented immigrants do not have private insurance coverage and are not eligible for full-scope Medi-Cal. As a result, they often rely on safety net providers like community clinics for health care. A component of the research includes expert interviews and we am requesting your participation in a 45 – 60 minute interview. Interviewees will be asked to provide information on the following topics:

1. Health or health care access challenges, beyond health insurance, specific to undocumented immigrants
2. Whether some undocumented immigrants avoid community clinics, and if so, why?
3. Ask experts to weigh in on preliminary quantitative findings

These insights will be paired with quantitative findings about undocumented immigrants' health status and their patterns of health care use in community clinics in a mixed methods study.

The information you provide will be incorporated into a PPIC report on community clinics and undocumented immigrants. *The organizations and names of those interviewed will be included in an appendix of the report, so the information you provide will not be confidential, although no direct attribution will be included in the report.*

Your participation in the study is voluntary. If you do not wish to participate, we may attempt to contact another person within your organization. If you do participate, you can stop at any time, you do not have to answer any

questions for any reason, and you should not feel obligated to discuss any topic with which you are not comfortable.

Thank you for contributing to the study. We will propose general topics and questions, and let the conversation develop organically. If it is acceptable to you, we would like to record your interview. This would provide an accurate record to which I could later refer and would allow us to fully engage during the discussion. We would not keep your recording beyond the life of this project.

Interview questions:

- What are undocumented immigrants' greatest health access challenges in California?
- Do undocumented immigrants in Los Angeles face greater challenges, lesser challenges, or are they comparable to undocumented immigrants elsewhere in California?
- Do federal policies change undocumented immigrants' use of health care in California?
- Do undocumented immigrants navigate health care differently than they do social safety net programs such as SNAP/CalFresh/CFAP, WIC, TANF/CalWORKS, or the EITC?
- State policy changes have made Medi-Cal available for low-income children, young adults, and older adults, regardless of immigration status. Have these policies changed health care use by low-income undocumented family or community members who are not in the expansion groups (i.e., ages 26 to 49)?
- Now we would like to change gears slightly and discuss undocumented immigrants' engagement with community clinics (FQHCs and look-alikes). Are there undocumented immigrants who avoid care in community clinics?
- Do undocumented immigrants in Los Angeles avoid clinics more, less, or similarly compared to undocumented immigrants elsewhere in California?

Please contact the principal investigator of this project if you have questions or concerns.

Paulette Cha
cha@ppic.org
415-291-4401

The Public Policy Institute of California is dedicated to informing and improving public policy in California through independent, objective, nonpartisan research.