

Pre-Analysis Plan for
The effects of the 2016 Presidential election and related immigration policies and enforcement
actions on health care utilization among undocumented immigrants in the San Francisco Bay
Area

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Introduction

This pre-analysis plan is to register an observational study that examines the impact of the 2016 Presidential election, the passage of major immigration-related Executive Orders, and post-election immigration enforcement events on health care utilization in two San Francisco Bay Area safety net settings.

Empirical Strategy

The empirical strategy assumes that the 2016 election, as well as both realized and anticipated immigration policy changes and enforcement actions resulting from the election, led to declines in health care utilization of undocumented immigrants, but not on patients in a documented control population. We expect to see declines in health care utilization only for likely undocumented patients after the election, and not for controls. Similarly, we expect to also see post-election increases in ED visits [and/or admissions for ambulatory care sensitive conditions] for undocumented patients relative to documented controls.

We expect that the magnitude of post-election differences in health care utilization patterns between undocumented and documented patients will depend critically on the composition of the control population. We will use three control populations for comparison: 1) foreign-born patients who are likely to be documented but have otherwise similar characteristics in terms of age, gender, ethnicity, language of encounter, and nativity; 2) US-born patients who are likely to be documented but have otherwise similar characteristics in terms of age, gender, and ethnicity; and 3) patients who are US-born, but have similar age and gender composition, and utilize Medi-Cal (i.e. are low-income).

We expect that if the control population is comprised of likely documented patients who are also immigrants and/or identify as Hispanic/Latino, we may observe fewer post-election differences due to anticipated spillover effects of immigration policies on other immigrants or US-born co-ethnics. Post-election differences in health care utilization may be wider when the control population is instead set to a non-Latino white population with comparable socio-demographic characteristics (e.g. age and gender distribution, low-income). The selection of one or more possible control populations will depend also on inspection of pre-election trends in health care utilization.

Our general estimation strategy will follow a model of the form:

$$Y_{it} = \beta_0 + \beta_1 undoc_i + \beta_2 elect_{it} + \beta_3 (elect_{it} * undoc_i) + \beta_4 X_i + \delta_t + \alpha_m + \lambda_h + \epsilon_{it}$$

Where Y_{it} is the outcome (e.g. an outpatient primary care visit) for individual patient, i , at time, t ; $undoc_i$ is an indicator of whether or not each patient, i , is likely to be undocumented and captures differences in the outcome between likely undocumented and undocumented patients prior to the election (or alternative exposures reflecting policies and enforcement actions occurring after the election); $election_{it}$ indicates the post-2016 Presidential election period (i.e. starting November 7, 2016); β_3 -- the coefficient of interest -- corresponds to the interaction term between $election_{it}$ and $undoc_i$; X_i is a vector of standard individual characteristics such as gender, age, education, etc.; δ_t and α_m are year and month fixed effect terms, respectively; λ_h are site (i.e. health care location) fixed effects and ϵ_{it} is an error term.

Robustness checks will include changing the time window around the policy intervention (e.g., Presidential inauguration, passage of Executive Orders, ICE raids, etc.) and adding site-specific time trends. Alternatively, depending on the data richness, we may also employ a regression discontinuity design. We will run placebo checks by analyzing hospital utilization behavior around various policy changes or executive orders unrelated to immigration (e.g., international trade agreements, climate change or gun controls).

Data

Data will come from patient medical records collected retrospectively from the Zuckerberg San Francisco General Hospital [or San Francisco Health Network] and Alameda Health System (AHS) between November 1, 2015 and September 1, 2018 on both adult and pediatric patients from outpatient, inpatient, and ED settings.

In addition to medical records data, we will have additional retrospective administrative data on all participants in the Alameda County Health Plan (Health PAC), which will allow us to assess the extent to which AHS medical records capture the Health PAC patient population, as well as declines in the renewal of Health PAC program participation.

Identification of Likely Undocumented and Control Groups

- Patients will be classified as likely undocumented if they currently or have ever utilized a county health plan (i.e. Healthy San Francisco in San Francisco or HealthPAC in Alameda) and are not US-born.
- Candidate control group 1: Patients who are likely documented because they utilize full-scope Medi-Cal but have a similar composition compared to the undocumented patient population on the following metrics: age, gender, nativity, ethnicity, language of encounter.

- Candidate control group 2: Patients who are documented because they utilize full-scope Medi-Cal [and are US-born] but have a similar composition compared to the undocumented patient population on the following metrics: age, gender, and ethnicity.
- Candidate control group 3: Patients who are documented because they utilize full-scope Medi-Cal [and are US-born and are non-Latino white] but have a similar composition compared to the undocumented patient population on the following metrics: age and gender.

While we plan to present effects using each of these candidate control groups in turn, this will depend on an assessment of pre-election trends in health care utilization. Our estimation strategy assumes that these pre-election trends would have otherwise remained the same were it not for the shock of the 2016 Presidential election (or executive orders).

Outcomes

Overall health care utilization

- Total number of and per capita outpatient primary care visits, ED visits, and inpatient admissions.

Encounters/admissions for ambulatory care sensitive conditions

- Total number of and per capita ED encounters and inpatient admissions assigned a primary diagnosis corresponding to any ambulatory care sensitive condition (based on ICD-10 diagnostic codes).
- Total number of and per capita ED encounters and inpatient admissions assigned a primary diagnosis corresponding to one of the following ambulatory care sensitive conditions (based on ICD-10 diagnostic codes):
 - Asthma exacerbation (pediatric and adults)
 - Cardiac condition (angina, congestive heart failure, hypertension, atrial fibrillation and flutter) (adults)
 - Diabetes complications (pediatric and adults)

We will examine both raw and log-transformed outcomes.

Additional Federal and Local Exposures to be Considered

Federal

- 2017 Presidential inauguration, Jan 20, 2017.
- Passage of immigration-related Executive Orders, in particular the Border Security and Immigration Enforcement Improvements order passed on Jan 25, 2017 (<https://www.whitehouse.gov/presidential-actions/executive-order-border-security-immigration-enforcement-improvements/>).

Local

- ICE officers at Good Samaritan Family Resource Center, San Francisco, Jan 26, 2017.
- Online reports of ICE raids in Alameda and Contra Costa Counties, Feb 16, 2017

And conditional on data availability:

- ICE raid in Hayward on Jul 27, 2017
- ICE raid in Oakland on Aug 16, 2017
- ICE arrests in Santa Clara on Sept 29, 2017
- ICE raids in Santa Clara, Santa Rosa, Siusun City, Petaluma and Sebastopol on Jan 10, 2018
- Potential ICE raids in early February 2018
- ICE raid in San Francisco in late February 2018
- Rumored ICE raids in April 2018