



Original research article

“Repeal and replace”: increased demand for intrauterine devices following the 2016 presidential election

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ABSTRACT

Objective: To evaluate public's interest in contraceptive options following heightened focus on a repeal of the Affordable Care Act (ACA) since the 2016 United States presidential election.

Study design: We monitored the fraction of Google searches emerging from the United States for the three most popular reversible contraceptive methods – oral contraceptives, intrauterine devices (IUDs) and condoms – from January 1, 2004, through October 31, 2017 (1 year after the presidential election).

Results: IUD searches were cumulatively 15% (95% CI: 10 to 20) higher than expected the year following the 2016 election, reflecting 10 to 21 million excess searches. IUD searches were statistically significantly higher in all states, except NV, and were consistent across states won by Trump or Clinton (Welch *t* test=0.60, *p*=.548). Conversely, searches for oral contraceptives and condoms remained stable (0%; 95% CI: –2 to 1) or declined (–4%; 95% CI: –5 to –2), respectively, following the election.

Conclusions: The etiology of increased searches for IUDs is likely multifaceted. However, it may largely be because IUDs will confer continued protection even after an ACA repeal, thereby providing a medical hedge against a possible repeal. Regardless, these data suggest the heightened focus on an ACA repeal is a concern to the record number of Americans seeking out information about IUDs.

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1. Introduction

Prior to the Affordable Care Act (ACA), about half the pregnancies in the United States were unintended [1], resulting in an estimated \$21 billion taxpayer burden [2]. Under the ACA, Americans gained access to prescription contraception without cost-sharing for 18 Food and Drug Administration-approved contraceptives, including intrauterine devices (IUDs) [3], reducing women's total out-of-pocket health care costs by 40% [4] and potentially unintended pregnancies [5]. However, given that “repeal and replace” is a central part of the Trump administration's agenda [6], how is the public responding to potentially losing this birth control benefit? (Voir Fig. 1.)

2. Study design

Because little or no traditional data are contemporaneously available, we turned to internet searches to understand public engagement

with contraceptive options [7], a popular approach for judging immediate reactions to shocks in the public health landscape [8,9] that is predictive of real-world behaviors and health trends [10,11].

We monitored the fraction of Google searches ([google.com/trends](https://www.google.com/trends)) emerging from the United States from January 2004 through October 2017 for the three most popular reversible contraceptive methods. This included oral contraceptives (all queries with “oral” and contraceptive(s)/tion,” or “birth control” and “pill(s)”), IUDs (“IUD” or IUD brands “ParaGard”, “Mirena”, “Skyla”, “Liletta”, and “Kyleena”) and condoms (“condom(s)”). We compared monthly search volumes for 1 year after the presidential election (November 1, 2016, to October 31, 2017) against expected search volumes (derived from autoregressive integrated moving average forecasts using all prior data to project a synthetic counterfactual [12]) nationally and by state. Our synthetic control method precisely isolates the potential change in searches after the election by quantifying the deviation in search volume above and beyond any expected cyclical or upward trends. We used bootstrap confidence intervals (CIs) and prediction intervals to test for statistically significant deviations in search trends. We inferred raw search counts from comScore estimates ([comScore.com](https://www.comscore.com)) to judge practical significance. We used R Ver. 3.4.0 to perform all analyses.

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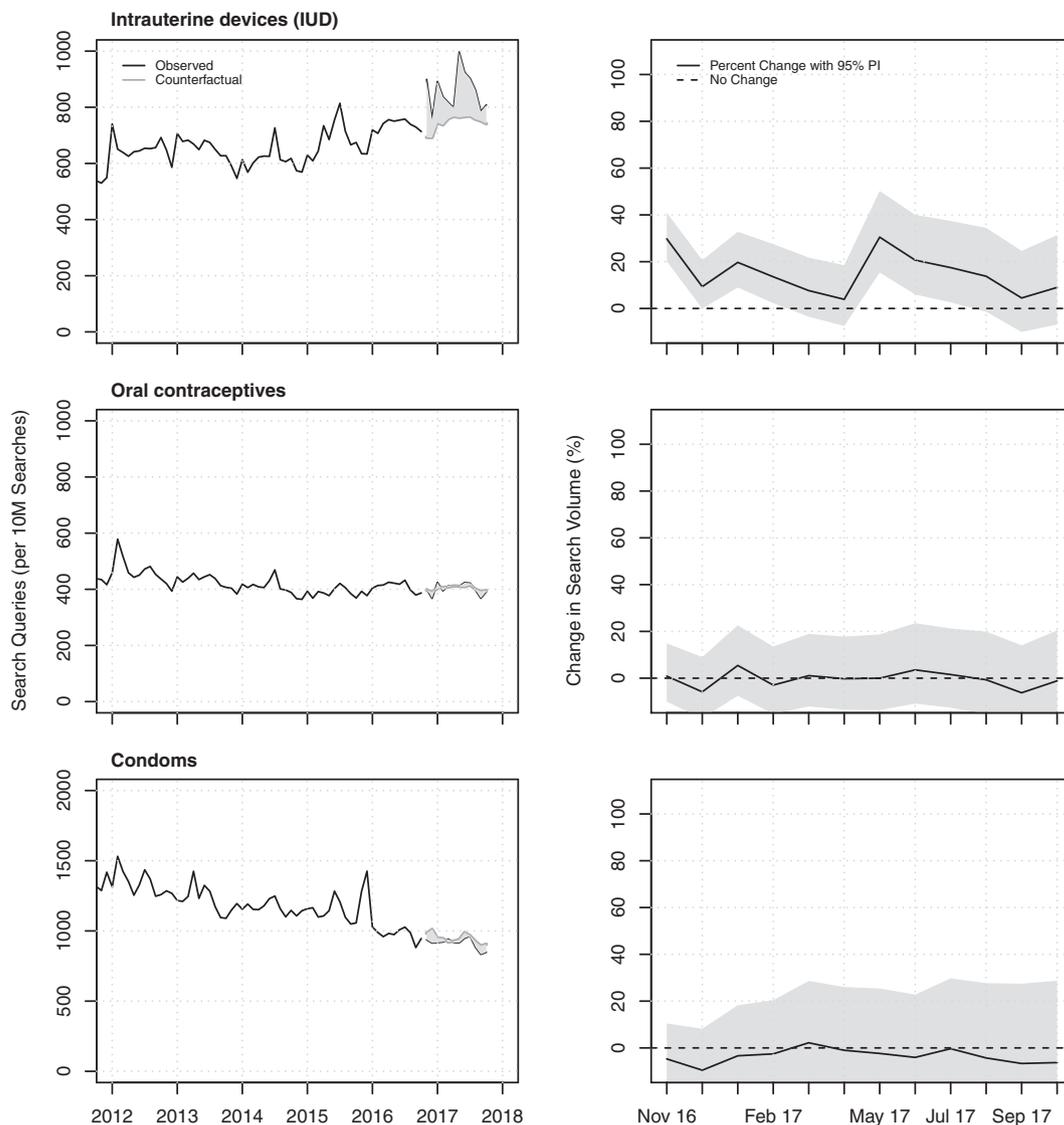


Fig. 1. Web searches for birth control following the election of Donald Trump. Each panel (left to right, respectively) shows searches for the focal search terms relative to all searches (per 10 million) against the predicted counterfactual and the observed search volumes against the counterfactual's 95% prediction interval. Note that the forecasted counterfactuals take into account cyclical and trending projections and are based on robust forecasts of future events had the election not been won by Trump.

3. Results

IUD searches reached all-time highs following the 2016 election. Searches were cumulatively 15% (95% CI: 10 to 20) higher than expected 1 year following the election, reflecting 10 to 21 million excess searches. For instance, our synthetic counterfactual predicted an increase in IUD searches, but observed searches were still higher than expected. IUD searches eclipsed the forecasted 95% prediction interval for 6 of the 12 months and reached a record high in May 2017, with 8.3 million total searches that month, when an ACA repeal advanced in the House as detailed in media reports [13].

IUD searches were statistically significantly higher than state-specific projected counterfactuals in all states, except NV (2%; 95% CI: -4 to 10), ranging from 9% greater in FL, IN, TN and WA to 24% in MO. Average increases were statistically indistinguishable across states won by Trump or Clinton (Welch t test=0.60, p =.548), with both red and blue states similarly searching more for IUDs.

Conversely, searches for oral contraceptives confirmed with expected volumes (0%; 95%CI: -2 to 1) 1 year after the election with observed search volumes for all months within the 95% prediction

interval. Condom searches, although not covered by the ACA, were statistically significantly lower than expected (-4%; 95% CI: -5 to -2) 1 year following the election.

4. Discussion

Americans are considering IUDs in record numbers with significantly more searches than expected the year after the 2016 election, while interest in other forms of birth control has remained stable (oral contraceptives) or declined (condoms).

It is unknown if queries corresponded with utilization as claims data are not available. Nonetheless, searches predict other behaviors, such as medical testing [10], and at minimum show that the year following the election of Trump who campaigned on an ACA repeal has coincided with elevated engagement with IUDs above and beyond what was expected based on historical trends. Many public health leaders have speculated about the potential implications of Trump's election [14]; ours is among the first to link the timing of the change in administration with potential changes in medical decision making using data.

The potential motivation for increased IUD searches following the election is potentially attributable to two factors. First, because IUDs will confer continued protection with a prophylactic lifespan of 3 to 10 years [15], searches for IUDs could be a medical hedge against repeal with IUDs providing more effective and long-lasting birth control than reversible alternatives (e.g., IUDs' failure rate is about 0.8% compared to 9% for typical use of oral contraceptives for typical use) [16]. Second, more Americans may be searching for IUDs because of financial concerns. If the ACA is repealed, users will pay more than \$1000 for IUD insertion [17]. The potential for alternative motivators seems limited given the timing of the increase in IUD searches, but the etiology of this shift must be explored by future studies that assess the public's reported reasons for seeking out IUDs. Regardless, it is critical that policy makers and health leaders consider record levels of demand for IUDs when considering changes to the ACA that might make IUDs less accessible.

Declarations

Ethics approval and consent to participate: not applicable.

Consent for publication: not applicable.

Availability of data and material: The datasets generated and/or analyzed during the current study are publicly available at [google.com/trends](https://www.google.com/trends).

Competing interests: Dr. Ayers and Dr. Dredze own equity in Good Analytics Inc., a data analytics company that uses big media data to yield actionable insights for public health advocacy groups. Additionally, Dr. Ayers holds equity in Health Watcher LLC, and Dr. Dredze has received consulting fees from Bloomberg LP and holds equity in Sickweather Inc. These organizations did not have any role in the study design, data collection and analysis, decision to publish or preparation of the manuscript.

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