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Original research

## Impact of a patient engagement tool on preventive service uptake

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### A B S T R A C T

**Background:** We studied whether integrating the US Department of Health and Human Services' myHealthfinder tool, an interactive tool that recommends preventive services, into CVS Health's digital platforms could increase preventive service uptake at its retail clinic, MinuteClinic.

**Methods:** We used a quasi-experimental, pre-post, difference-in-differences design. In a web-based campaign, consumers in "exposed" states visiting CVS pharmacy and MinuteClinic websites could view and use the myHealthfinder tool. Consumers in "unexposed" states could not. A September 26, 2015 email campaign to registered MinuteClinic patients in exposed states described and included links to the myhealthfinder tool. We assessed consumer engagement with the myHealthfinder tool via number of website visits, myHealthfinder sessions, and myHealthfinder recommendations delivered. Using the difference-in-differences approach, we assessed mean changes in influenza, pneumococcal, and/or hepatitis A vaccine uptake, as well as other preventive services, per clinic, per month at MinuteClinics.

**Results:** In exposed states, 39,225 (1.6%) website visits included myhealthfinder use, and 13,688 personalized recommendations for preventive services were delivered. The web-based campaign was associated with an increase in mean pneumococcal vaccines (1.19 vaccines per clinic per month; 95% CI, 0.11–2.28). The email campaign resulted in a 5% increase in influenza vaccines (74.83 vaccines per clinic per month; 1.65–148.02). The myhealthfinder campaigns did not significantly change preventive service uptake for any of the other services at MinuteClinics.

**Conclusions:** Our findings highlight the potential role of personalized patient education tools and public-private partnerships to communicate about preventive care. Getting patients to act on these recommendations was more difficult.

### 1. Background

Health care reform efforts have emphasized the important role that recommended clinical preventive services can play in reducing morbidity, mortality, and unnecessary healthcare costs.<sup>1</sup> These services are largely underused; fewer than half of older adults  $\geq 65$  and only 25% of adults 50–65 years old are up to date on their preventive services.<sup>2</sup> Limited health literacy, insufficient access to primary care, and inconvenience are among the known barriers to the appropriate use of preventive services.<sup>3</sup> Recognizing this disparity, the U.S. Department of Health and Human Services (HHS) removed financial barriers to utilization by eliminating patient cost-sharing requirements for selected evidence-based, recommended preventive care services.<sup>4,5</sup>

To help communicate recommended preventive services in a consumer-friendly way, HHS' Office of Disease Prevention and Health

Promotion (ODPHP) in the Office of the Assistant Secretary for Health (OASH) developed the myhealthfinder tool, a central feature of the government's award winning consumer-facing healthfinder.gov website.<sup>3</sup> healthfinder.gov is a trusted, credible source of easy-to-use prevention and wellness information, designed with attention to health literacy and usability principles. Based on a patient's self-reported age, sex, and pregnancy status, the interactive myhealthfinder tool provides personalized information for recommended preventive services.<sup>3,4</sup> To maximize patient outreach, OASH/ODPHP developed free, publicly available content syndication tools, including an application programming interface (API), that allows website editors and developers to host and share the government's preventive services and wellness information by embedding the myhealthfinder tool on their own websites.<sup>5</sup>

In May 2015, CVS' MinuteClinic partnered with the healthfinder.gov team to integrate the myhealthfinder tool into the CVS

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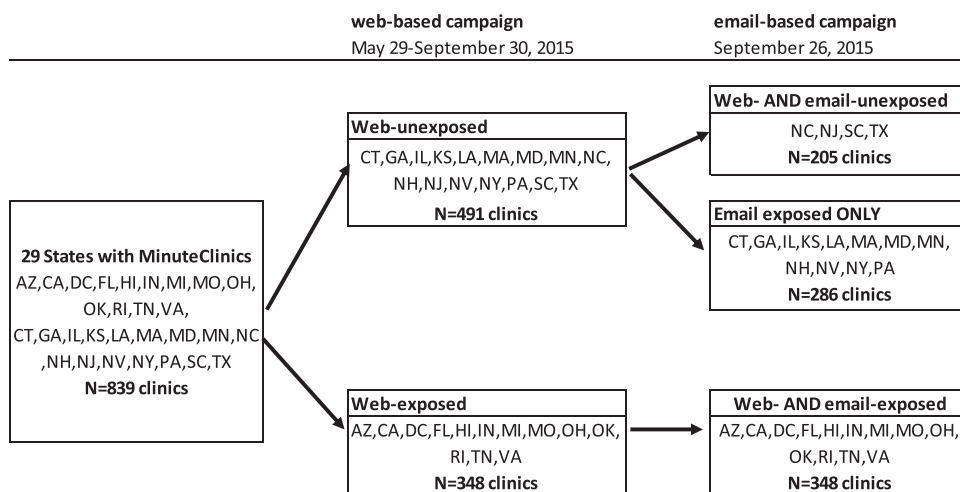


Fig. 1. Exposure assignment, by campaign and its corresponding time period.

Pharmacy and MinuteClinic websites.<sup>3</sup> The goal of this pilot collaboration was to determine whether MinuteClinic website-based and email outreach about the myhealthfinder tool would help increase consumers' understanding of the preventive services they need and, in turn, increase uptake of preventive care services.

## 2. Methods

### 2.1. myhealthfinder outreach campaigns

CVS Health and HHS together designed two digital outreach campaigns one web-based during May 29 – September 30, 2015, and one email-based conducted on a single date, September 26, 2015. In the web-based campaign, patients who visited the “www.CVS.com” and/or “www.MinuteClinic.com” websites viewed content that raised awareness of and encouraged patients to use the embedded myhealthfinder tool to learn about recommended preventive services by entering their own personal information, e.g., age, gender, pregnancy status, tobacco use. Key CVS Pharmacy and MinuteClinic website access points were developed so that interested website visitors could click a link and be directed to the myhealthfinder tool. These access points included both top-of-page “hero” banners, bottom-of-page “secondary” banners, a text-friendly URL to facilitate return visits, and a myhealthfinder content “tab”. For example, the hero banner message on both the CVS Pharmacy MinuteClinic websites said “myhealthfinder: Many preventive health services may be available at no cost to you.” This and other webpage content screenshots with labeled access points are in the [Appendix](#).

In the second follow-on campaign, the MinuteClinic sent a single myhealthfinder-focused email to 1,027,577 adult patients who had visited MinuteClinic at least once and had registered to receive MinuteClinic email communications. The email encouraged the use of the myhealthfinder tool and provided a direct link to the myhealthfinder tool embedded in the MinuteClinic website. Although MinuteClinic offers some recommended preventive services, neither the web-based or email campaigns directed patients to specifically receive recommended services at MinuteClinics, and the myhealthfinder tool advocates contacting a primary care provider to obtain recommended preventive services.

### 2.2. Study design

To understand changes in preventive screening uptake, we used a quasi-experimental difference-in-differences design with concurrent controls to assess the impact of each outreach campaign: web outreach versus none; email outreach versus none, and the combined effect of

both web and email outreach versus email outreach alone. Exposure definitions for each comparison are defined below. For the web-based campaign, the pre-period was June to September 2014 and the follow-up period June to September 2015. Of note, the follow-up period for the web-based campaign did include 1 month (June) when the influenza vaccine (one of the study outcomes, described below) was not yet available for the 2014–2015 and the 2015–2016 flu seasons. Therefore, our number of vaccines per month per clinic calculations for the influenza vaccine outcome reflect a 3 month rather than a 4 month follow-up period.

The email campaign occurred only once, on September 26, 2015. Here, we compared a one-month pre-period, October 2014 with a one-month post-period, October 2015. Similarly, to assess the combined impact of web and email outreach to email outreach alone, we compared a pre-period, October 2014 with a post-period, October 2015. The shorter observation periods for the email campaign and the web + email versus email only comparison were based on the reasoning that a single email was only likely to have an impact for a short time period.

### 2.3. Exposure

Exposure to each campaign was assigned at the state-level and applied to all patients residing in those states, as illustrated in [Fig. 1](#). States (and patients) exposed to the web-based campaign (*web-exposed*) resided in one of 13 geographically diverse states (AZ,CA,DC,FL,HI,IN,MI,MO,OH,OK,RI,TN,VA). Patients accessing the same websites from 16 other states with comparable geographic diversity and a similar proportion of total MinuteClinic visits for preventive care when compared to the web-exposed sites (CT,GA,IL,KS,LA,MA,MD,MN,NC,NH,NJ,NV,NY,PA,SC,TX) did not see any myhealthfinder content and were defined as *web-unexposed*. For the email campaign that launched after the web-based campaign had nearly ended, web-unexposed states were divided into 13 *email-exposed only* states (CT,GA,IL,KS,LA,MA,MD,MN,NH,NV,NY,PA) and 4 *email-unexposed* states with email eligible patients (NC,NJ,SC,TX) where no communications were sent. Of note, to isolate the impact of the email communication, email-unexposed states (and thus patients residing in those states) were also web-unexposed during the first campaign. Finally, we created a last exposure category, *web- and email-exposed* states (AZ,CA,DC,FL,HI,IN,MI,MO,OH,OK,RI,TN,VA) to compare whether there was an incremental impact associated with exposure to the 2 campaigns versus the email campaign only.

### 2.4. Outcomes

To assess digital engagement with the web-based campaign, we first

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