Increasing Flu Shot Uptake Among Pregnant Women

Targeted email outreach via an electronic medical record messaging system did not increase uptake of the flu vaccine among pregnant women

Target a Priority Outcome The Centers for Disease Control and Prevention set a target for influenza vaccination rates among pregnant women of 80% as part of the Healthy People 2020 objectives. In the 2016-17 influenza season, the influenza vaccination rate among pregnant women in the Duke University health system was 68%. Identifying new strategies to increase vaccination rates and pursuing the prevention of infectious diseases through immunizations is a goal of the National Vaccine Program Office in the U.S. Department of Health and Human Service.

Translate Evidence-Based Insights Despite the benefits of the flu shot for both pregnant women and their unborn children, many pregnant women do not receive a shot. Reasons may include motivational barriers (for example, hesitancy about vaccines or fear of side effects) and implementation barriers (failure to follow through, despite the intention to receive a shot).[1] In collaboration with the Duke University health system, the Office of Evaluation Sciences (OES) designed a simple message encouraging pregnant women to receive a flu shot delivered via the electronic health records messaging system. The message highlighted that pregnant women are at greater risk of the flu and that the vaccine provides benefits for both mother and infant. To address potential implementation barriers, the message additionally reminded patients that they could receive the flu vaccine at their next scheduled appointment.

Embed Tests The sample included 2,083 pregnant women enrolled as obstetric patients in the Duke health care system. Patients were randomly assigned to the treatment condition, in which they received the newly developed targeted message highlighting the importance of the flu vaccine, or a control condition in which they did not receive this targeted messaging.

Analyze Using Existing Data The Duke health system records flu vaccination rates as part of its electronic medical record system. Anonymized data recording uptake of the flu vaccine was used to analyze the vaccination uptake rates in the treatment and control arms.

Reanalyzed Results The results indicate that targeted communication around the importance of accessing the flu vaccine did not lead to increased uptake of the vaccine. In the full experimental sample, uptake of the flu vaccine was 40% in the control group and 38% in the treatment arm. The difference between the two enrollment rates is statistically insignificant (p=.475, 95% CI [-.056, .026]). In addition, due to incomplete baseline information around prior uptake of the flu vaccine, some patients included in the experiment had received the vaccine prior to the launch of the intervention. When we restrict the sample to exclude these early adopters, uptake of the flu vaccine during the post-intervention period was 18% in the control group and 17% in the treatment arm, and the difference between the two enrollment rates is statistically insignificant (p=.923, 95% CI [-.035, .039]). Figures 1 and 2 show the probability of flu vaccine uptake for patients in the control and treatment arms for the full sample and the restricted sample, respectively.

[1] CDC (2013), "Surveillance of Influenza Vaccination Coverage," http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6204a1.htm, retrieved 3/24/2017. Galarce EM, Minsky S, Viswanath K. (2011). Socioeconomic status, demographics, beliefs and A(H1N1) vaccine uptake in the United States. *Vaccine*, *29*(32):5284-9

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Figure 1: Probability of flu vaccine uptake by arm (full sample)

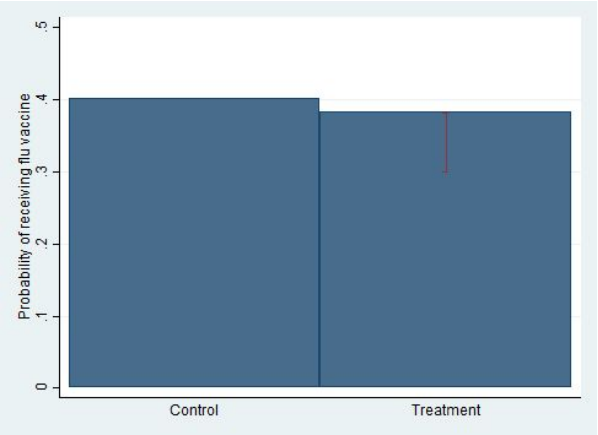
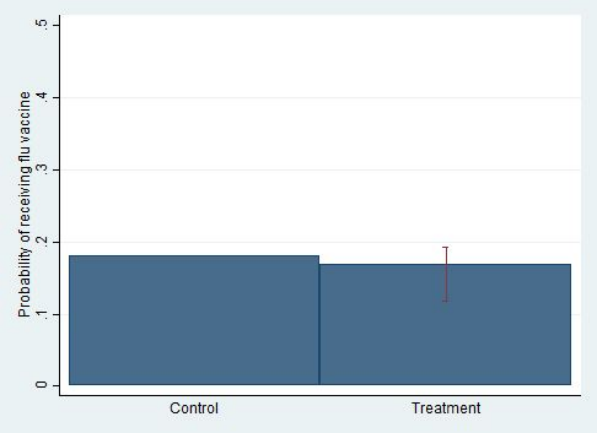


Figure 2: Probability of flu vaccine uptake by arm (restricted sample)



Build Evidence This project demonstrates the ability of government agencies and their research partners to execute rapid tests evaluating the dissemination of information via electronic health record messaging systems. The limited effectiveness of the electronic message suggests that increasing the uptake of the flu vaccine among pregnant women may require a more robust intervention that directly targets the roots of vaccine hesitancy. Further exploration of the potential risks of disseminating health information about vaccines via electronic messaging may also be informative.

This project is a collaboration between the General Services Administration Office of Evaluation Sciences and the U.S. Department of Health and Human Services,