



# Increasing Flu Vaccine Uptake through Performance Feedback

*Provider vaccine performance feedback did not increase flu vaccine uptake among Veterans at the Atlanta VA*

**Target a Priority Outcome** The Department of Veterans Affairs (VA) National Center for Health Promotion and Disease Prevention encourages vaccinations for Veterans, in line with the Centers for Disease Control recommendations.<sup>1,2</sup> Despite the availability of free seasonal influenza (flu) vaccines at VA health care facilities, rates of flu vaccination and many other adult vaccinations fall below the HealthyPeople 2020 targets of 70%.<sup>3</sup>

**Translate Behavioral Insights** At the Atlanta VA Health Care system, primary care physicians, advanced practice providers, and nurses reported being unaware of their panel's flu vaccination progress during the flu season. Evidence suggests that providing comparative provider vaccination rates can be successful in increasing vaccination rates. For example, healthcare providers who received feedback that compared their performance to top physicians increased flu vaccinations from a rate of 40% to a rate of 58%.<sup>4,5</sup>

The Atlanta VA and OES developed a performance feedback intervention, including four monthly performance feedback emails, a leaflet with

evidence-based practices to increase flu vaccination rates and an online Frequently Asked Questions document. The performance feedback included flu vaccination rates for each provider group, called a Patient Aligned Care Team (PACT). Specifically, it contained each PACT's current and past flu vaccination rates for<sup>7</sup>, the number of unvaccinated patients assigned to the PACT, and peer vaccination rates in the form of the "Top 10%" of PACTs at the Atlanta VA. It also highlighted the Healthy People 2020 vaccination targets for adults aged 18-64 (i.e., 70%).<sup>8</sup>

**Embed Evaluation** The efficacy of the provider-based monthly performance feedback intervention was tested with a cluster-randomized controlled trial. The Atlanta VA identified PACT clusters (consisting of physicians, advanced practice providers, and nurses), of which 82 did not have overlapping healthcare providers and participated in the study.<sup>9</sup> In the study period (November 4, 2019 to March 31, 2020), 88,296 patients were empanelled to these PACTs.

A total of 66,725 patients who were not vaccinated at the start of the study period were randomized into the intervention (41 PACTs) and a business-as-usual condition (41 PACTs). The randomization process was blocked by PACT size and location. Within the performance feedback PACTs, each healthcare provider received a total of four monthly performance feedback emails over the course of the study period. Each performance

<sup>1</sup> National Center for Health Promotion and Prevention: Influenza (Flu). U.S. Department of Veterans Affairs, December 4, 2013. Retrieved from: <https://www.publichealth.va.gov/flu/index.asp>.

<sup>2</sup> Vaccine Information for Adults. Centers for Disease Control and Prevention. Accessed October 22, 2019. Retrieved from: <https://www.cdc.gov/vaccines/adults/index.html>.

<sup>3</sup> Immunization and Infectious Diseases. Healthy People 2020. Accessed October 25, 2019. <https://www.healthypeople.gov/2020/topics-objectives/topic/immunization-and-infectious-diseases/objectives>.

<sup>4</sup> Kiefe, Catarina I., et al. "Improving quality improvement using achievable benchmarks for physician feedback: a randomized controlled trial." JAMA 285.22 (2001): 2871-2879.

<sup>5</sup> A previous OES performance feedback study that included a comparison in vaccination rates between schools found no effect in increasing vaccination compliance

<sup>6</sup> Leight, Jessica & Elana Safran. "Increasing immunization compliance among schools and day care centers: Evidence from a randomized controlled trial." Journal of Behavioral Public Administration Vol. 2, No. 2 (2019). <https://journal-bpa.org/index.php/ibpa/article/view/55>

<sup>7</sup> This included cumulative monthly rates for earlier in the flu season starting in September 2019, one month before the intervention started

<sup>8</sup> Office of Disease Prevention and Health Promotion: Healthy People 2020 - Increase the number of people who get vaccinated against the flu every year. Retrieved from: <https://health.gov/healthypeople/about/how-has-healthy-people-changed>

<sup>9</sup> Debroy, Pompa et al., "Increasing Vaccine Uptake Through Performance Feedback: A Cluster Randomized Trial." AEA RCT Registry, (2019). AEARCTR-0005196.

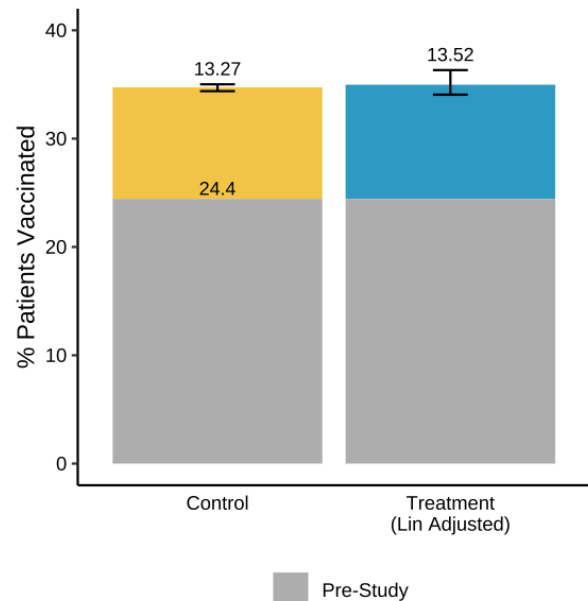
feedback included information about the cumulative vaccination progress of the recipient PACT, the number of unvaccinated patients left within respective PACTs, as well as a leaflet with best practices of how to improve vaccination uptake.

**Analyze Using Existing Data** We used data from VA electronic health records to compare flu vaccination uptake between the two groups within the study period. The data included whether a patient got a flu shot and the date of the flu shot, which enabled us to assess the efficacy of performance feedback for each month separately. The data also included information about patients' individual characteristics – including age, rurality, gender, race, ethnicity, and whether a patient was vaccinated in the 2018-2019 flu season – that enabled a more precise estimate of the interventions' effectiveness.

**Results** The results suggested that there was no statistically significant difference in flu vaccination rates between patients in treatment and control PACTs one month following the performance feedback treatment. We observed a vaccination rate of 13.3% among PACTs that received the performance feedback intervention and 13.5% among PACTs that did not during the study period<sup>10</sup> ( $p = 0.899$ , 95% CI [-0.009, 0.014]). Flu vaccination during the entire 2019-2020 flu season was 34.5% for the study population and 40.3% for all patients across the entire Atlanta VA.

Exploratory analysis examining the vaccination rate by reporting period (i.e., November 2019, December 2019, January 2020, February 2020) reveals a statistically significant negative treatment effect in March at the 95 percent confidence level of -0.361 percentage points ( $p=0.021$ , CI [-0.679, -0.042]) in the treatment versus control PACTs.

**Build Evidence** This project builds off of previous work with the Atlanta VA to identify evidence around what does and does not work to increase vaccination rates, which will allow the VA to better target future vaccination efforts.



**Figure 1:** Percent of patients vaccinated for flu by treatment and control condition

This study demonstrates that using performance feedback to increase flu compliance is not always effective. The performance feedback intervention was implemented mid-flu season after a significant portion of patients had received the flu vaccination already. It is possible that PACT members did not perceive it as feasible to further improve their numbers because many of their patients were vaccinated already. Future work could look at embedding performance feedback interventions in standard organizational routines.

<sup>10</sup> After covariate adjustment for the following covariates using the Lin estimator (Lin, W. 2012. "Agnostic notes on regression adjustment to experimental data: Reexamining Freedman's critique" The Annals of Applied Statistics, Vol. 7, No.1, pp. 295-318): patient gender, age categories, rurality, race/ethnicity, prior season's flu vaccination, PACT-level vaccination rates pre-intervention period.