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## Brief Report

## Influenza vaccination for hospital Employees: A 3-year success-story of a flu-pod drive-thru at a Veterans affairs medical center

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## Key Words:

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The Advisory Committee on Immunization Practices recommends all healthcare practitioners and hospital staff receive an annual influenza vaccination. Many challenges were noted in achieving this goal; especially during the last 2 influenza seasons throughout the COVID-19 pandemic. Over the past 3 years our institution has implemented a Drive-Thru fixed Point of Distribution (POD) event for this purpose. Drive-Thru PODs can be a safe and effective strategy for employee vaccination during a pandemic.

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## INTRODUCTION

Annual influenza vaccination is recommended for all health-care personnel by the Healthcare Infection Control Practices Advisory Committee and Advisory Committee on Immunization Practices.<sup>1</sup> Several barriers to vaccination have been previously identified. In a recent meta-analysis of surveys in healthcare workers, “lack of time” among other etiologies was blamed by 33% of responders.<sup>2</sup>

In a consumer society driven by a business model of speed, efficiency and volume, a drive-thru venue can offer much in the way of providing “customer” convenience and satisfaction. *This venue has been highly successful in the food industry.* Not surprisingly, this idea of obtaining products and services through a car window, has been previously used in public health with the implementation of drive-thru clinics. The first “Drive thru-prevent flu” clinic, in the United States, was offered by the Veterans Affairs Medical Center in Dallas and the University Hospital of Louisville in 1995.<sup>3,4</sup> Such drive-thru clinics have efficiently administered a large number of influenza vaccines, improved access to populations of concern, and were well received by vaccinees.<sup>5-7</sup>

The last 2 years of the Coronavirus disease 2019 (COVID-19) pandemic has, undoubtedly, added more hurdles for the healthcare employee (HCE) vaccination programs due to social distancing, remote working, and growing vaccine hesitancy. During these challenging times over the past 3 years, we have successfully implemented a Drive-Thru fixed Point of Distribution (POD) HCE influenza vaccination event in our Medical Center.

## METHODS

A single day, 90-minute HCE influenza vaccination event was planned as a drive-thru flu POD in the fall of 2019, 2020 and 2021. The location was at the main employee entrance of the Northport Veterans Affairs (VA) Medical Center. See [Figure 1](#) depicting the diagram of the event. The HCE remained in their car throughout the process, having completed and signed the necessary documentation. During the COVID-19 pandemic, HCE and vaccinators had to wear masks. VA-Police directed traffic at the checkpoint into 2 lanes: flu shot, and non-flu shot lanes. Employees were directed to drive to 1 of 10 tables, staffed with 2 nurses each; employees received their vaccination through a rolled-down window, or open door, with an ambulance standing by in case anyone had an adverse reaction. Employee safety was of paramount concern so weather, rain date, traffic control, and appropriate location, had all been predetermined. Coordinating services involved were the VA-Police, Emergency Management, VA-Fire

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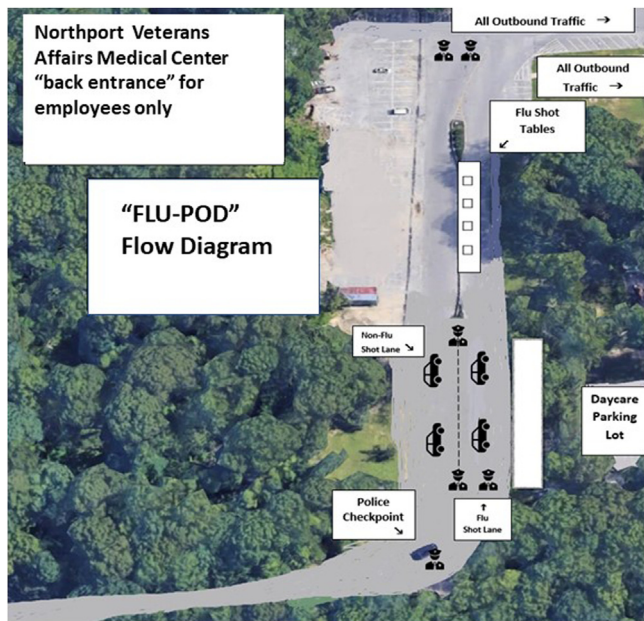


Fig 1. Diagrammatic depiction of the Drive-Thru Flu POD event.

Department, Public Affairs, Logistics, Nursing, Pharmacy, Environmental Management, Occupational Health, Infection Control, and Information Technology. Personal protective equipment (PPE) was available, as well as safe handling of sharps with marked containers for proper disposal to prevent potential occupational sharps exposures. Twenty members of the medical staff volunteered to administer the vaccine shots including 4 infection control preventionists, nurses from acute care and nursing homes, as well as a nurse practitioner and a physician from occupational health. VA police officers conducted crowd control and pharmacists packed and delivered the vaccines to the outdoor location monitoring vaccine levels throughout the event to ensure there was enough vaccine on hand.

RESULTS

Two hundred and ninety employees, 385, and 351 employees received the influenza vaccination at the drive- thru flu POD in 2019, 2020 and 2021 respectively. Compared to the 2017 and 2018 indoor flu-pod events which were conducted for 12 and 10 hours respectively, only 250 (in 2017) and 90 (in 2018) vaccinations were given. The drive-thru events yielded a vaccination rate per 100 minutes, 322 in 2019, 427 in 2020, and 390 in 2021, much higher compared with the indoor event. See Figure 2. No major or minor adverse events occurred. Each “flu-pod” event was received as convenient, safe, and efficient by the vaccinees who were very well accommodated and described their experience as “lots of fun.” The volunteer vaccinators had no difficulty adapting to the drive-thru concept. All volunteers, nurses, police officers and firemen shared a close bond, comradery and a sense of duty helping their fellow employees.

DISCUSSION

Drive-thru clinics are a novel type of point of distribution where participants drive to a designated location and receive vaccination while remaining inside their vehicle. Our drive-thru influenza vaccination POD events utilized an outdoor space at the dedicated employee entrance. Our drive-thru events for HCE were more successful than previous indoor PODs likely due to the convenience, speed, and “fun aspect” of receiving the vaccine in the comfort of a vehicle just before starting the workday. It is interesting to point out that we first implemented the drive-thru modality a year prior to the onset of the global COVID-19 pandemic, and the lessons and experience we learned did help us to be equally successful vaccinating our fellow employees during the pandemic. *The continued success of the program could be due to favorable viva voce among employees leading to an increased motivation to be vaccinated while driving to work.*

In the midst of a global pandemic outdoor-drive-thru PODs with appropriate use of PPE pose less of an infection transmission risk to participants as compared to indoor events with obvious challenges of keeping social distancing rules.<sup>8</sup> Drive-thru modalities for COVID-19 testing and administering COVID-19 vaccine have been utilized with

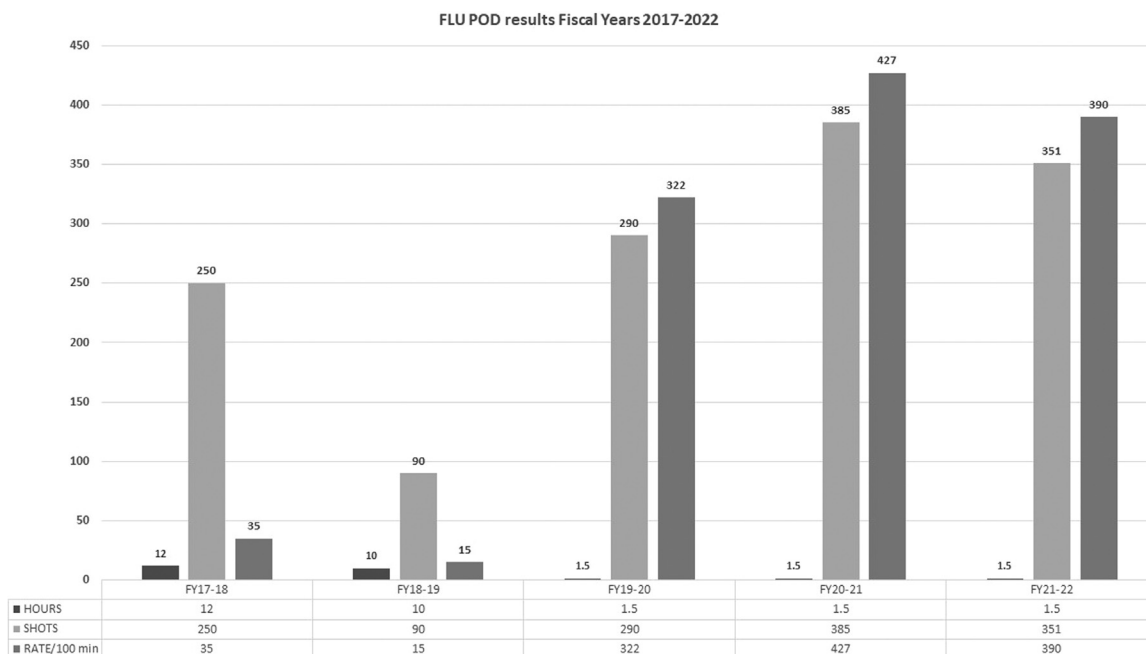


Fig 2. FLU-POD results Fiscal Years 2017-2022.

great success.<sup>9,10</sup> Reise et al organized their drive-in COVID-19 vaccination site in a 2-story parking garage with great success counting nearly 800 vaccinations administered per day.<sup>10</sup> A drive-thru vaccination system was recently instrumental in immunizing 12,152 people against tick-borne encephalitis in an Alpine region of Northern Italy.<sup>11</sup> Indeed, drive-thru and drive-in locations, as well as PODs in busy travel hubs (airports and train stations) can be part of strategic mass-vaccination sites, especially during the COVID-19 pandemic, where vaccination of a large part of the world's population is desirable in controlling the disease.

## CONCLUSIONS

Drive-thru set ups can be thoughtfully organized to administer a large number of seasonal influenza vaccinations in a hospital setting for HCE. This can be done efficiently and safely, an undeniably optimal option especially during a global pandemic. Given their reported success – not only in the United States but elsewhere in the world, it would be anticipated that drive-thru clinics will be enduringly incorporated into national mass vaccination efforts against “old foes” like influenza, emerging ones, like COVID-19, and likely future infectious disease threats.

## ACKNOWLEDGMENTS

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## References

1. Advisory Committee on Immunization Practices; Centers for Disease Control and Prevention (CDC). Immunization of health-care personnel: recommendations of the Advisory Committee on Immunization Practices (ACIP). *MMWR Recomm Rep*. 2011;60(RR-7):1–45.
2. Guillari A, Polito F, Pucciarelli G, et al. Influenza vaccination and healthcare workers: barriers and predisposing factors. *Acta Biomed*. 2021;92(S2):e2021004. <https://doi.org/10.23750/abm.v92iS2.11106>.
3. Swanson L. Drive thru, prevent flu. *CMAJ*. 2003;169:1197.
4. Carrico RM, McKinney WP, Watson NA, et al. Drive-thru immunization: Fifteen years of experience. *J Emerg Management*. 2012;10:228–232. <https://doi.org/10.5055/jem.2012.0101>.
5. Banks LL, Crandall C, Esquibel L. Throughput times for adults and children during two drive-through influenza vaccination clinics. *Disaster Med Public Health Prep*. 2013;7:175–181. <https://doi.org/10.1017/dmp.2013.3>.
6. Banks L, Vanderjagt A, Crandall C. The view through the window: characterizing participants in a drive-through influenza vaccination clinic. *Disaster Med Public Health Prep*. 2014;8:243–246. <https://doi.org/10.1017/dmp.2014.40>.
7. Bailey LC, Barrett NR, Thorne M, et al. Successful drive-thru point of distribution influenza vaccination program for Veterans affairs medical center employees. *Am J Infect Contr*. 2020;48:S31.
8. Rebmann T, Coll B, 2009 APIC Emergency Preparedness Committee. Infection prevention in points of dispensing. *Am J Infect Control*. 2009;37:695–702. <https://doi.org/10.1016/j.ajic.2009.09.001>.
9. Ngo J, Ravi S, Kim N, Boukhman M. Drive-through medicine for COVID-19 and future pandemics. *West J Emerg Med*. 2020;22:252–256. <https://doi.org/10.5811/westjem.2020.9.48799>. Published 2020 Dec 16.
10. Reise R, Huang Y, Usmani SA, et al. The adaptation of a clinic-adjacent parking garage for drive-in COVID-19 vaccination. *Health Serv Insights*. 2021;14. <https://doi.org/10.1177/11786329211042769>. 11786329211042769. Published 2021 Sep 11.
11. DE Polo A, Schiavon C, Brancher M, et al. Drive-through vaccinations prove successful in immunizing mountain communities against tick-borne encephalitis during the COVID-19 pandemic. *J Prev Med Hyg*. 2021;61:E497–E500. <https://doi.org/10.15167/2421-4248/jpmh2020.61.4.1814>. Published 2021 Jan 14.