Project Definition and Scope

Multiple large outbreaks of hepatitis A virus (HAV) occurred in the United States from 2016-2020, resulting in 31,950 reported acute HAV infections, 19,548 hospitalizations and 322 deaths, primarily among those experiencing homelessness or injecting drugs.[1] The Veterans Healthcare Administration (VHA) has a large number of patients potentially at risk for HAV and its related complications due to high prevalence of chronic liver disease, homelessness and substance use disorders. Furthermore, the city of Seattle has one of the largest and fastest-growing homeless populations in the United States, reporting 32% population growth among those living in tents or encampments from 2018 to 2019 alone.[2] Washington State declared a state-wide HAV outbreak in July 2019, concentrated in people experiencing homelessness or injecting drugs.[3]

The Centers for Disease Control and Prevention (CDC) recently updated its HAV immunization guidelines to recommend vaccinating individuals experiencing homelessness or injecting drugs.[4] Of the 144,827 VHA patients identified nationally as homeless as of January 2019, 46.3% lacked documentation of HAV immunity or prior receipt of vaccination via VHA or the military.[5] My capstone project aimed to promote HAV vaccination among Veterans experiencing homelessness at VA Puget Sound Healthcare System in Seattle, WA.

Objectives and Expected Outcomes

VA Puget Sound serves a catchment of 105,000 Veterans and includes a 291-bed tertiary care facility, a 131-bed nursing home, a 60-bed Domiciliary, and seven community-based outpatient clinics. The goal of my capstone project was to vaccinate approximately 25% of susceptible homeless Veterans at VA Puget Sound between August 2019-Feb 2020 (roughly 220 Veterans), with dual HAV/ HBV vaccine provided to those with dual susceptibility as per CDC and Advisory Committee on Immunization Practices (ACIP) guidelines.[4]

Methodology

Veterans experiencing homelessness access the healthcare system irregularly and through various pathways, necessitating a multipronged intervention strategy to promote immunizations. I began my capstone project by determining the scope of the unvaccinated at-risk population using electronic data resources. I generated a list of Veterans in Puget Sound's catchment without documented HAV vaccination or immunity testing, or service before 1995 (the year the military began mandatory vaccination for HAV). Next, I set up an in-person kickoff meeting including a team of interested stakeholders from Hepatology, inpatient medicine, and the homeless primary care service. During the initial meeting I presented the goals of the project and solicited feedback and ideas for possible interventions. Subsequently, the team met bimonthly over Skype for project updates. Interventions and implementation strategies are described below, organized by cohorts targeted for vaccination outreach.

<u>Veterans experiencing homelessness served by VA primary care</u>

Our homeless primary care team performs site visits to local shelters contracted with VHA. After discussion with the homeless primary care team, I learned that HAV vaccines were not being carried to these locations. I learned that the homeless team had only one full-time nurse who was already overburdened and unable to provide vaccinations of any kind. However, several nurses associated with a related team (VA-supported housing) were willing to begin bringing vaccines with them to site visits. Ultimately, the VA-supported housing nurses began bringing a variety of vaccines to three VA-supported

housing facilities, including HAV, HBV, influenza, pneumococcal, and tetanus. The VA-supported housing nurses identified a lack of educational materials to publicize the HAV vaccination efforts. I worked with Medical Media to produce facility-branded promotional materials (Figure 2) to help the VA-supported housing nurses to publicize the importance and availability of HAV vaccines at the shelter facilities.

Veterans experiencing homelessness receiving healthcare outside the VA

I contacted my state and local health department to ensure that VA Puget Sound was listed on their public-facing website as a location at which enrolled Veterans could receive viral hepatitis vaccination.[6] I co-hosted a booth promoting viral hepatitis vaccination at a city-wide resource fair targeted towards homeless Veterans.

Veterans experiencing homelessness admitted to inpatient services

Homeless Veterans are frequently admitted to the hospital and to our Domiciliary facility. I worked with the Hospitalist service and General Medicine service to raise awareness of the need for hepatitis vaccination by giving a Grand Rounds talk on this subject, sending reminder emails, and creating an FAQ document for distribution to inpatient and outpatient Medicine providers. A hepatology nurse overseeing a hepatitis C treatment was already monitoring the inpatient census for Veterans experiencing homeless. She volunteered to screen high-risk Veterans for susceptibility to hepatitis A and B and to alert inpatient providers when their patients were in need of vaccination.

Veterans experiencing homelessness who frequently access the Emergency Department

I was enthusiastic about involving the Emergency Department because many Veterans experiencing homelessness use it as their main access point for medical services. However, I was warned by multiple colleagues and stakeholders that the Emergency Department would be uninterested in participating because they would not consider routine vaccinations part of their scope of care. Therefore, I carefully considered strategies for recruiting the ED service before requesting a meeting with the Director of the Emergency Department.

After querying my network of contacts at the local Health Department, I learned of a successful hepatitis A vaccination intervention designed by an ED provider at one of our University of Washington partner institutions. After talking with this provider, who was eager to showcase his successful project, I arranged a meeting between him, the ED director at my facility, and myself. I presented our facility's baseline data illustrating the low vaccination rates in the homeless population, as well as the urgent public health need for intervention given our active local outbreak. Next, the ED provider from our partner site presented his project and offered to help mentor our own ED in rolling out a vaccination effort. I made an early decision not try to tell our ED Director how to implement a vaccination drive, but rather to support her team in developing an ED-designed and ED-led effort that would be sustainable over the long term. She ultimately not only supported the project willingly, but also offered the assistance of two ED physicians who were looking for a quality improvement project for purposes of their board certification. These two providers took the lead in rolling the vaccination effort out and educating their fellow ED team members. The project resulted in numerous process improvements, including homelessness screening added to the ED triage questionnaire, addition of hepatitis A vaccinations (and several non-hepatitis vaccines) to the ED's "quick order" menu, and stocking of hepatitis A vaccine in the ED for the first time. The ED providers and I collaborated with our Medical Media department to design posters, vaccination recall cards, and other promotional materials for the ED waiting room.

Results

As of April 2019, my facility's catchment included 1,787 Veterans identified as homeless, of whom 728 (40.7%) were susceptible to HAV and 793 (44.4%) susceptible to HBV (n=882 unique patients). These included Veterans utilizing VA-supported shelter resources (n=89), obtaining primary care through the Health Care for Homeless Veterans program (n=574), or receiving legal support and case management through the Veterans Justice Outreach (n=128). An additional 91 screened positive for homelessness via a mandatory facility-wide clinical reminder.

From August 2019-March 2020, we initiated 43 hepatitis A vaccination series and 58 hepatitis B vaccination series in people experiencing homelessness. This represents a 226% increase and 151% increase in the number of Hepatitis A and B vaccinations, respectively, compared to a similar time period the preceding year (Figure 1). Excluding incarcerated Veterans engaged solely with the Veterans Justice Outreach receiving medical care through the criminal justice system, we vaccinated 7.2% of the entire susceptible homeless population for hepatitis A and 9.7% for hepatitis B.

Discussion/ Impact

Our vaccination drive resulted in a 226% and 151% year-over-year increase in hepatitis A and B vaccinations facility-wide, respectively, in a vulnerable population with inconsistent healthcare access. Though we did not meet the original objective of vaccinating 25% of the eligible homeless population, project efforts led to creative linkages across multiple departments caring for homeless Veterans including the homeless primary care team, the hospitalist service, Hepatology, and the Emergency Department. We made significant inroads towards improving hepatitis A and B vaccination coverage among people experiencing homelessness at VA Puget Sound.

<u>Lessons learned</u>

My capstone project resulted in multiple sustainable improvements to workflows and processes that, together, will facilitate hepatitis A and B vaccination into the future in a vulnerable group of Veterans. I implemented many skills from the AAPL/ ACP coursework, especially communication and influence. At first, it seemed daunting to try and launch a multifaceted effort without any direct authority over the related departments or personnel. However, I found that even when the individuals I approached were overcommitted or unable to help personally, they were often willing to support the project indirectly by recruiting other colleagues or advocating for resources.

Early in the course of my capstone, I identified a need to improve my own tendency to implement ideas right away. Instead of jumping straight to implementation, I strove to listen carefully to my colleagues as they offered perspectives from their own areas of expertise. As a case example, I was told by multiple well-meaning parties that the Emergency Department would never agree to participate in administering vaccinations. However, when I approached them respectfully together with an Emergency Medicine physician from a partner site, they were not only willing to listen but enthusiastic to collaborate. The ED ultimately designed outstanding process modifications that I expect will produce many future benefits for homeless patients, such as adding screening for housing insecurity on the ED triage questionnaire, improving the ED order menu, and stocking hepatitis A vaccines in the ED for the first time. I believe

that my collaborations with the ED and other departments led to several facility-wide process improvements, such as screening inpatients for HAV vaccine candidacy, and bringing HAV vaccine supplies to VA-affiliated homeless shelters.

The capstone project benefited from publicity surrounding a large local hepatitis A outbreak that was widely announced in the media and via King County Public Health bulletins. We leveraged existing non-VA platforms to disseminate our efforts, including getting our facility listed on the King County Public Health website detailing venues with immunization available. I suspect that stakeholder engagement for our vaccination effort was higher than usual, in part, because of the publicity surrounding the outbreak.

Future Directions

Hepatitis A immunity rates among VA users are almost certainly underestimated, since many homeless Veterans are dual users of the VA system and the private sector and may have received vaccinations elsewhere. It is unclear how many local VA patients at my facility may have received vaccination through the major outreach efforts implemented by Public Health King County.[6] Like most states, Washington has a state-wide vaccine registry that includes HAV immunization. However, due to 1960s-era federal regulations, VHA is forbidden from sharing vaccination data with state registries. I raised awareness of this issue with the national VHA program office overseeing public health. After unsuccessful attempts to negotiate a solution with the VA's Privacy Office, and the VA's Office of General Counsel, the national office overseeing population health embarked on the process of obtaining legislative relief for the outdated regulations. I served as a subject matter expert as the issue was elevated to the national level. The VHA's privacy office is currently pursuing legislative relief through an amendment to the Privacy Act of 1965. If successful, revised legislation would permit VA healthcare workers to query patient-level immunization data in state registries for all types of immunizations, as well as reciprocally sharing vaccine data with states.

Acknowledgments:

The following individuals were instrumental in the completion of my capstone project:

Emergency Department: Mary Claire Murphy-Rose, Khairunissa Rajwani, Carolan Hass, Jake Wheeler, Herbie Duber (Harborview Medical Center)

Hepatology: Edgar Hernandez-Garcia, Grace Rhem, George Ioannou

Hospitalist Service: Paul Cornia *(project mentor)*

Homeless Primary Care Service: Laxminarsimha Reddy, Brian Hopps, Rebecca Stevens

Pharmacy: Jutta Joseph

King County Public Health: Jeffrey Duchin, Sarah Stewart, Libby Page Jody Rauch

Figure 1: Quarterly hepatitis A and B immunization series initiated at VA Puget Sound (October 2000-March 2020)

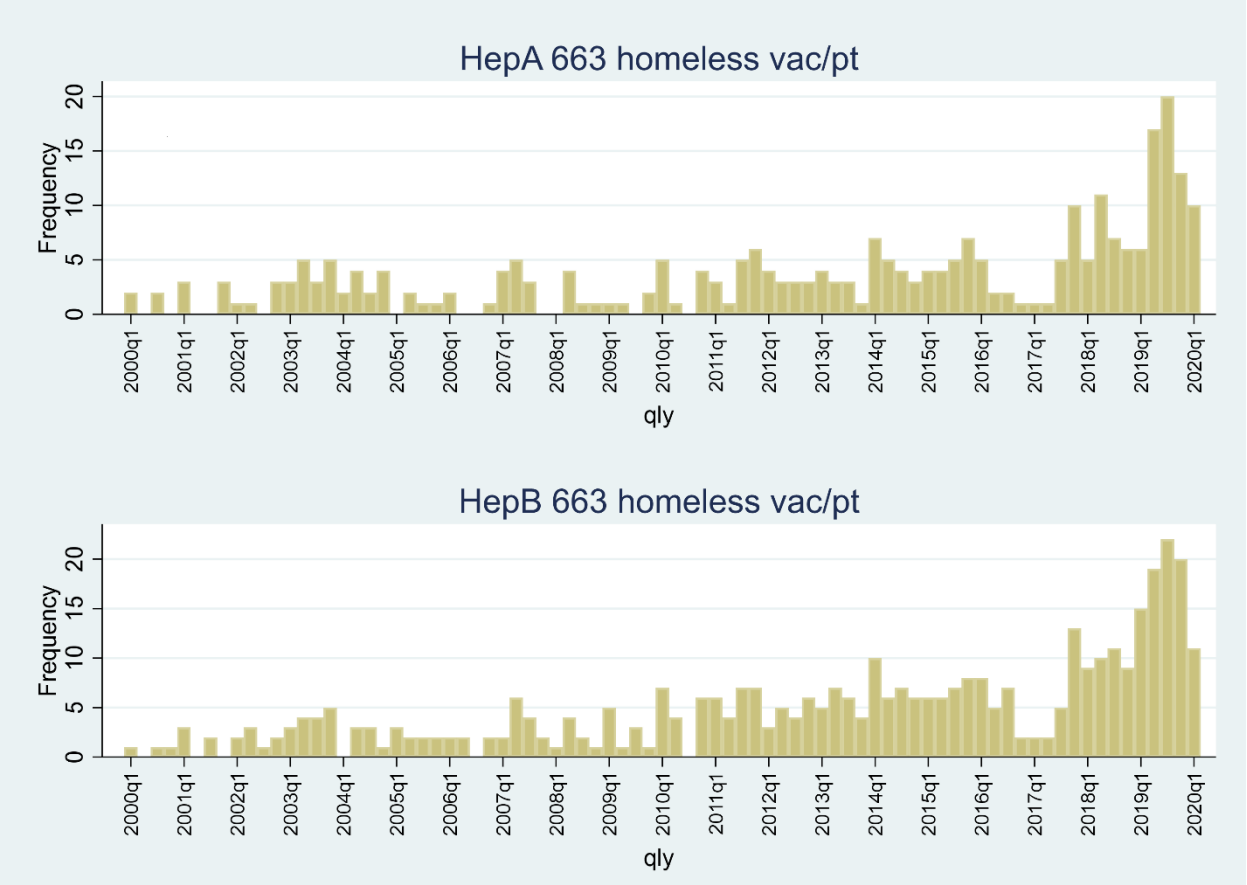

Figure 2

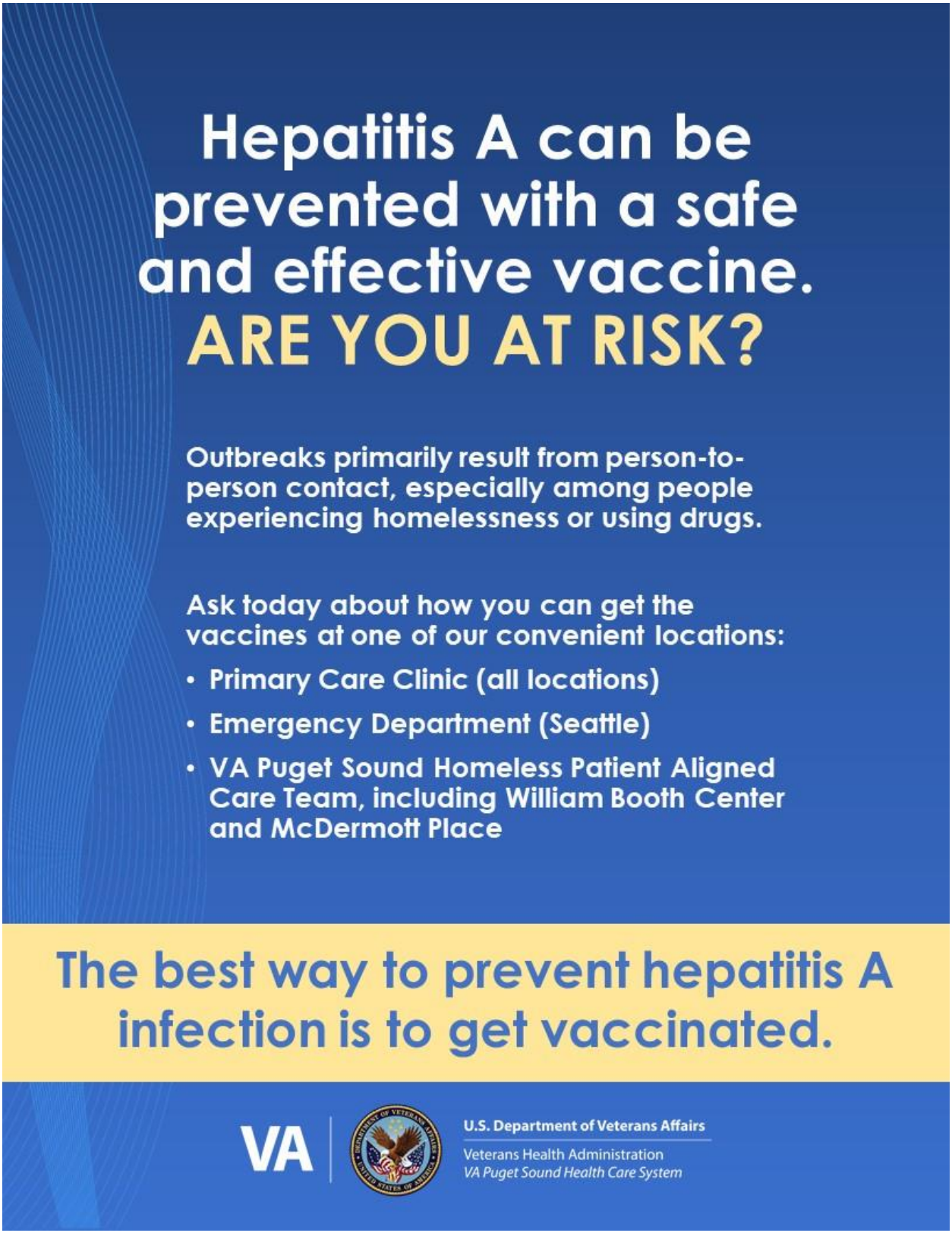
Hepatitis A can be prevented with a safe and effective vaccine.
ARE YOU AT RISK?
Outbreaks primarily result from person-to-person contact, especially among people experiencing homelessness or using drugs.
Ask today about how you can get the vaccines at one of our convenient locations:
• Primary Care Clinic (all locations)
• Emergency Department (Seattle)
• VA Puget Sound Homeless Patient Aligned Care Team, including William Booth Center and McDermott Place
The best way to prevent hepatitis A infection is to get vaccinated.
VA
U.S. Department of Veterans Affairs
Veterans Health Administration
VA Puget Sound Health Care System

Figure 3

SEATTLE VA EMERGENCY DEPARTMENT

For your PRIVACY, please complete the following information and hand it to the front desk:

FULL NAME: _____

Last Four Numbers of Your Social Security #:_____

Date of Birth: _____

Why are you coming to the Emergency Department today?

_____

_____

Are you having thoughts of harming yourself or others?

☐ No

☐ Yes

Do you have any weapons with you today? (guns, knives, etc.)

☐ No

☐ Yes, I have a _____

Have you traveled outside of the United States in the last three weeks?

☐ No

☐ Yes, I went to _____

Do you have housing concerns? (homeless, living in car, unstable housing)

☐ No

☐ Yes

Seattle is experiencing an outbreak of hepatitis A virus in people living homeless or using drugs. Do you want a Hepatitis A vaccine? ☐ No ☐ Yes

Has your phone number, address or insurance changed since your last visit?

☐ No

☐ Yes-**New** address/phone number is: _____

* For **NEW** insurance - Please hand MSA insurance card* revised 5/17/2017

This form will be shredded and destroyed after use

References

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Comments from advisor

It is my privilege to have served as Dr. Beste's capstone mentor. Over the past year, she embarked on an ambitious, facility-wide, clinically meaningful ACP capstone project. As is evidenced by this report, she achieved a variety of successes, both personal and for our patients. The year-over-year increase in hepatitis A and B vaccination rates are impressive, particularly in a difficult-to-reach patient population. Equally impressive was Dr. Beste's ability to engage a broad contingent of stakeholders, including physicians (general medicine, inpatient and outpatient; hepatology), nurses, pharmacists, and county public health. This is an absolutely essential skill in physician leadership, and the lessons learned from this project will undoubtedly help Dr. Beste to continue to grow and excel as a leader.