

**Improving Shingrix Vaccine Uptake for Medicare Part D Patients in the Primary Care
Setting**

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NURS 703B: DNP Project

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Submitted to: Jonathan Soffer DNP, ANP - Chair

This paper is submitted in partial fulfillment of the requirements for
the Doctor of Nursing Practice degree.

Abstract

Herpes zoster (HZ), commonly known as shingles virus, affects approximately one in three people in their lifetime and presents a significant health risk for adults over 65, with the potential for long-term complications like postherpetic neuralgia. The Shingrix vaccine, recommended for adults aged 50 and older, offers an effective preventive measure, yet vaccination rates remain low. This quality improvement project aimed to enhance Shingrix vaccine uptake among Medicare Part D patients aged 65 and older in a primary care clinic by addressing barriers to receiving pharmacy-administered-vaccines. The intervention involved educating patients about the vaccine, utilizing shared decision making, and scheduling patients for a vaccine at their preferred pharmacy while in clinic as well as e-prescribing the vaccine to a patient's local pharmacy. Results showed a significant increase in vaccine uptake, from 8% to 23.8%, with key barriers to vaccination identified as schedule conflicts and acute illness. Providers' and medical assistants' participation was crucial for the intervention's success. The intervention had minimal impact on provider efficiency and proved cost-effective, suggesting potential for broader application in other primary care settings. Further studies are recommended to refine the approach and explore strategies for increasing uptake of the second Shingrix dose.

Improving Shingrix Vaccine Uptake for Medicare Part D Patients in the Primary Care Setting

Problem Description

Herpes zoster (HZ), also known as the shingles virus, is a viral infection with an incidence of approximately 3.9-11.8 per 1000 persons per year in adults over 65 (Patil et al., 2022). Additionally, approximately one in three people in their lifetime will develop shingles (Centers for Disease Control and Prevention, 2023). This common virus is caused by the *Varicella-zoster* virus (VZV) which is also known as chicken pox. When a child or adult is first infected with VZV, the virus remains latent in the body after the infection resolves and can emerge later in life as HZ (Parikh et al., 2021). Infection of HZ occurs in three stages known as the pre-eruptive, acute exudative, and chronic stages (Parikh et al., 2021). Each stage is marked by severe pain or burning along the affected dermatome accompanied by a painful vesicular rash in the acute exudative phase (Parikh et al., 2021). Pain from HZ infection can last up to four weeks or even longer in some cases resulting in a complication known as postherpetic neuralgia (Parikh et al., 2021). HZ can be treated with antiviral medication and pain can be managed with various therapies, but HZ infection symptoms can be greatly reduced or even prevented by prophylactic vaccination (Patterson et al., 2021). Prior to 2020, there were two vaccinations available for HZ including a live attenuated vaccine, *Zostavax*, which was discontinued in the United States in 2020, and an adjuvanted recombinant zoster vaccine, *Shingrix*, which was released in 2017 and is now the only FDA approved shingles vaccine available in the United States (Patterson et al., 2021). *Shingrix* vaccination is recommended for all adults older than 50 and is given in a two dose series with the second injection administered two to six months after the first dose (Patterson et al., 2021). Vaccination rates for shingles varies with an estimated

national vaccination rate of 34.5% in 2018 in adults 60 and older (Terlizzi & Black, 2020). In Oregon, the adult immunization rate for adults 60 and older was 13.3% in 2019 (Oregon Health Authority, n.d.). In Jackson County, the adult immunization rate for adults 60 and older was 9.2% in 2019 (Oregon Health Authority, n.d.). Under Medicare Part D, the Shingrix vaccine is completely covered for members, but a requirement of this coverage plan is that the vaccine be administered in a pharmacy setting (McNamara et al., 2019). Barriers to vaccination include a lack of patient knowledge and understanding about the need for vaccination, patient stated vaccine resistance or hesitancy, vaccine cost when not covered by insurance, and the inconvenience of being required to receive the vaccine at the pharmacy after recommendation by a healthcare provider (McNamara et al., 2019). Addressing these barriers is crucial for increasing vaccination rates and reducing HZ infection and complications.

Available Knowledge

The literature was reviewed to answer the question: “*What strategies have been successful in increasing vaccine uptake in pharmacy settings?*” A PubMed literature search was performed, with results limited to peer-reviewed journals with a date range of 2019-2024. The search used key terms: vaccine hesitancy, barriers to Shingrix vaccine uptake, pharmacy based vaccines, and Medicare Part D.

In order to address barriers that reduce Shingrix vaccine uptake for Medicare Part D patients, interventions that address vaccine hesitancy, financial vaccine burden, and vaccine accessibility outside of the primary care clinic are necessary. In addressing vaccine hesitancy, Singh et al. (2022) found through systematic review that reductions in vaccine hesitancy were most effective when interventions targeted understanding the root cause of hesitancy and addressing knowledge gaps for patients. Singh et al. (2022) also found that reduction in hesitancy

or rather a change in desire to receive a vaccine was positively influenced by provider recommendation. Similarly, Lin et al. (2021) found, through systematic review, that provider perceptions and beliefs regarding vaccines had strong influence on patients' desire to receive a vaccine. Utilizing a shared decision making model when discussing vaccine recommendations that includes providers sharing their recommendations positively affects patient's willingness to receive recommended vaccines (Lin et al., 2021; Singh et al., 2022)

Cost to receive a vaccine, particularly Shingrix, can deter patients from receiving recommended vaccines. In two multi cohort Markov Model studies, vaccine cost reduction increased the amount of patients willing to and following through with receiving recommended vaccines (McGirr et al., 2019; Curran et al., 2021). Since January 1 of 2023, vaccines covered under Medicare Part D are free to receive at a pharmacy for patients with Part D coverage (McNamara et al., 2019). Ensuring patients are aware that Shingrix vaccine is available for free to Part D recipients helps overcome the vaccine cost barrier. Additionally, uptake of the vaccine reduces overall health costs and services that are associated with Shingles illness (McGirr et al., 2019; Curran et al., 2021).

Accessibility is increased when vaccines are able to be obtained in a pharmacy setting rather than a clinic setting alone. However, increasing patients' ability to successfully receive a vaccine at a pharmacy is crucial for increasing accessibility (McNamara et al., 2019). In the clinic setting patients are more likely to receive a recommended pharmacy vaccine when scheduled for a vaccine appointment at their respective pharmacy while in clinic (Houle, 2019; Nossier et al., 2023). Nossier et al. (2023) also found in their cohort study that patients are more likely to receive a recommended vaccine when it is prescribed to the patient's pharmacy of choice. Improving the after visit workflow to include scheduling patients for recommended

vaccines or prescribing recommended vaccines to patients' preferred pharmacies increases vaccine uptake (Houle, 2019; Nossner et al., 2023).

Rationale

For this improvement project the models followed included the Sigma Six DMADV methodology and the Institute for Healthcare Improvement Model for Improvement (IHI MI). The model for improvement was initiated through a Plan, Do, Study, Act (PDSA) framework, similar to the Sigma Six DMADV, with prior data analysis completed to determine the root cause of decreased Shingrix vaccination uptake in Medicare Part D patients in the primary care clinic. Due to the increase in healthcare costs and potential long-term health risks after a Shingles infection, interventions were developed based on the literature review to address barriers preventing Shingrix vaccine uptake for Medicare Part D covered patients. In addition to the literature review, the cause and effect diagram highlighted that the local area had a low percentage of vaccine uptake and a lack of provider or patient knowledge about the importance of receiving the Shingrix vaccine. The interventions included implementation of a post-visit workflow where medical assistants (MAs) helped patients schedule a Shingrix vaccine online through their preferred pharmacy and requested that providers ask eligible patients if they wanted the vaccine prescribed to their preferred pharmacy (Lin et al., 2021; Singh et al., 2022; Houle, 2019; Nossner et al., 2023).

Specific Aims

To improve Shingrix vaccine uptake in Medicare Part D patients aged 65 and older at the project site over three months by implementing post visit workflows that address vaccine uptake barriers.

Methods

Context

The primary care clinic where the improvement project took place employed five providers with licenses including Doctor of Osteopathic Medicine, Physician Associate, and Nurse Practitioner. Each provider had patients in their panel over 65 and had Medicare Part D coverage and therefore, provided Shingrix vaccine recommendations when indicated. The practice had laboratory services on site but did not have a pharmacy on site or within a larger company association which required patients to obtain Shingrix at a pharmacy in the community. The local community had lower percentages of vaccination and higher rates of vaccine hesitancy associated with political, religious, and lifestyle influences. The primary care clinic had been interested in implementing a QR code scanning system, provided by Shingrix representatives, in each exam room that allowed patients to schedule a Shingrix vaccine at their preferred pharmacy while in clinic. Because of this, the clinic was open to interventions to help increase pharmacy vaccine appointment scheduling access. All current providers in the clinic were supportive of the need for vaccination and felt comfortable discussing this with patients. The clinic also had the ability to e-scribe prescriptions to various local pharmacies which made implementation of a post-visit vaccine prescription possible in the EMR the clinic utilized.

Interventions

The intervention included initiating a post visit workflow template for providers that included written acknowledgement of a Shingrix vaccine recommendation if indicated for patients. This allowed providers to note if education about the need for vaccination was given, and providers also documented any pertinent information, which included interest in receiving the vaccine, if the patient would have liked to schedule an appointment in the clinic or had the vaccine e-scribed, about shared decision making and the patient's reported feelings about

receiving the vaccine. Based on the shared decision making discussion, the provider either prescribed the Shingrix vaccine electronically to the patient's preferred pharmacy or requested that the MA help the patient schedule an appointment online for vaccination at the patient's preferred pharmacy.

The intervention required consistency across provider's practices when recommending the vaccine and implementing the intervention components. The intervention also required training for the MAs in how to navigate various local pharmacy websites and how to schedule vaccine appointments. The implementation team provided this training. The MAs utilized the in-room computers, Shingrix representative provided QR codes for scheduling, or the patient's personal smart phone.

Study of the Interventions

The study of the intervention included tracking the sample of patients through the pharmacist reporting database for vaccine administration 30 days after the vaccine was recommended to the patient. Patients who received the Shingrix vaccine were noted in an Excel spreadsheet and those who had not received their vaccine were contacted for follow-up to understand why the vaccine had yet to be completed. The study of the intervention also included monthly chart auditing for MA and provider documentation regarding vaccine recommendation, education, and whether the patient intended to schedule an appointment in office or have the vaccine sent to their pharmacy as a prescription. Barriers to successfully implementing the intervention were addressed initially with the individuals who did not take up the intervention and were addressed as a collective clinic group for multiple staff who were unable to properly implement the intervention.

Measures

The outcome measure evaluated whether the implemented intervention was successful in increasing the percentage of Medicare Part D insured patients in a primary care clinic who have received the Shingrix vaccine over a three month period. The process measure evaluated how successful providers and ancillary staff were at implementing the intervention and identified potential staff barriers to implementation. The balancing measure evaluated how the intervention impacted time the provider and MA spent with patients and how this impacted the daily workflow.

Analysis

Most data was gathered manually through chart audits and database searches for the intervention data measures. This data was stored in Excel and deidentified to protect patients' privacy. The data was analyzed and compared to pre-intervention data which included the current clinic Shingrix vaccine percentage of Medicare Part D insured patients. This data was displayed on a visual graph for comparison.

Ethical Considerations

In considering the proposed intervention, recognition of implicit provider bias surrounding a patient's vaccination decisions and how this affected the provider - patient relationship was important. It was also important to consider what ethical principles were involved in this proposed implementation. Through the ethical principle of beneficence, or the moral obligation to act for the benefit of others, it was crucial that providers used their academic study and knowledge to recommend interventions for patients, like the Shingrix vaccine, which promoted the health and well-being of patients (Pierce & Smith, 2019). However, recognition of how the ethical principle of autonomy affected the proposed intervention had to be considered. This principle encompasses the idea that competent adults have a right to determine their own

wishes and desires for care (Pierce & Smith, 2019). These wishes were to be respected and assuming this intervention addressed most barriers, if a patient was not interested in receiving the Shingrix vaccine then that was ultimately his or her choice and right.

Results

Between November 4, 2024 and January 6, 2025, a total of 67 patients were offered the Shingrix vaccine through this intervention. There were no changes to the intervention during this two month implementation interval. Of the 67 patients (n=67) who were offered the Shingrix vaccine, 16 received their vaccine resulting in 23.8% vaccine uptake compared to the initial clinic vaccine uptake percentage of 8% (Figure E1). Of the 16 patients who received their vaccine, 14 scheduled an appointment while in clinic to receive their vaccine. 100% of patients in the sample opted to have the vaccine e-scribed to their preferred pharmacy while 11 out of 67 patients (16.4%) also opted to schedule a vaccine appointment while in clinic but did not receive their vaccine after 30 days (Table E1). When asked during follow-up the reason for not receiving the vaccine of those 51 individuals, 25 (49%) reported schedule conflicts, 17 (33.3%) reported becoming ill and were therefore unable to receive their vaccines, four (7.8%) reported continued concerns or hesitancy related to receiving the vaccine, and five (9.8%) reported other miscellaneous reasons for not receiving the vaccine (Table E1).

Three of the five providers in the clinic chose to participate in the intervention after the initial information session. This equates to 60% provider participation for the clinic. Weekly chart audits revealed 95% provider compliance in using the post-visit template in chart notes. Visit times for providers remained at an average of 18 minutes despite implementation of new MA visit tasks and utilization of the provider post-visit template incorporated in the implemented intervention.

Discussion

Summary

Overall, implementation of this intervention achieved the aim and demonstrated improved Shingrix vaccine uptake for patients with Medicare Part D coverage compared to the clinic's baseline Shingrix vaccine uptake for this patient population. E-prescribing the vaccine for patients was not a factor that contributed to vaccine uptake as every patient included in the intervention requested the vaccine to be e-prescribed. Scheduling a vaccine appointment with patients in clinic appeared to improve vaccine uptake, though 16.4% of patients who scheduled appointments in clinic did not receive their vaccine within 30 days. Key barriers for patients in receiving the vaccine included schedule conflicts or acute illness which resulted in patients being unable to receive their scheduled vaccine. Particular strengths of this project included addressing barriers that resulted in increasing patient vaccine uptake, though more work could be done in this area. Participating providers demonstrated compliance with the intervention through the chart auditing process. Additionally, the implemented intervention did not result in increased appointment times for providers and indicated no impact to provider productivity and efficiency.

Interpretation

Vaccine education and recommendation are key components of health maintenance that primary care providers (PCPs) discuss with patients. The project intervention utilized this component of healthcare visits and expanded it to not only recommend health maintenance but address barriers to performing health maintenance. Because of this, the PCP and MA workflow was minimally interrupted resulting in achievement of not only the outcome measure of the project but of the process and balancing measures as well. Scheduling patients in clinic to receive a pharmacy-administered-vaccine is effective in increasing vaccine uptake which has also been

demonstrated by Houle, (2019) and Nosser et al., (2023). Ability to increase Shingrix vaccine uptake reduces the risk of developing long term negative effects from infection such as post-herpetic neuralgia. Implementing clinical workflows that address pharmacy-administered-vaccine barriers has limited impact on a provider's clinical efficiency and has a large impact on patient safety. The implementation of a workflow to address the barriers of vaccine uptake is cost-effective as the implementation does not require financial support and there is limited impact on productivity. Lack of provider buy-in was an outcome that was not anticipated. The providers who chose not to participate in the intervention reported that the intervention felt too similar to their current practice and did not seem effective. This is an area that future PDSA cycles will need to address.

Limitations

Limitations of this study included a small sample size which could result in variable success if the intervention is implemented on a larger scale. This study also only had the capacity for one PDSA cycle which prevented any adjustments being made to the intervention. Clear communication about the role of each person on the implementation team and the parameters of the intervention were performed to address any limitations that occurred regarding a limited PDSA cycle and capacity for intervention adjustments.

Conclusions

Addressing barriers to increase vaccine uptake for older adult patients is crucial in supporting patients' health and wellbeing as a PCP. This intervention had positive impacts in the clinical setting that could be applied to other clinics. Future areas of study should include implementation of this intervention on a larger sample size. Other areas of future study include interventions that explore ways to increase vaccine uptake for the second Shingrix injection.

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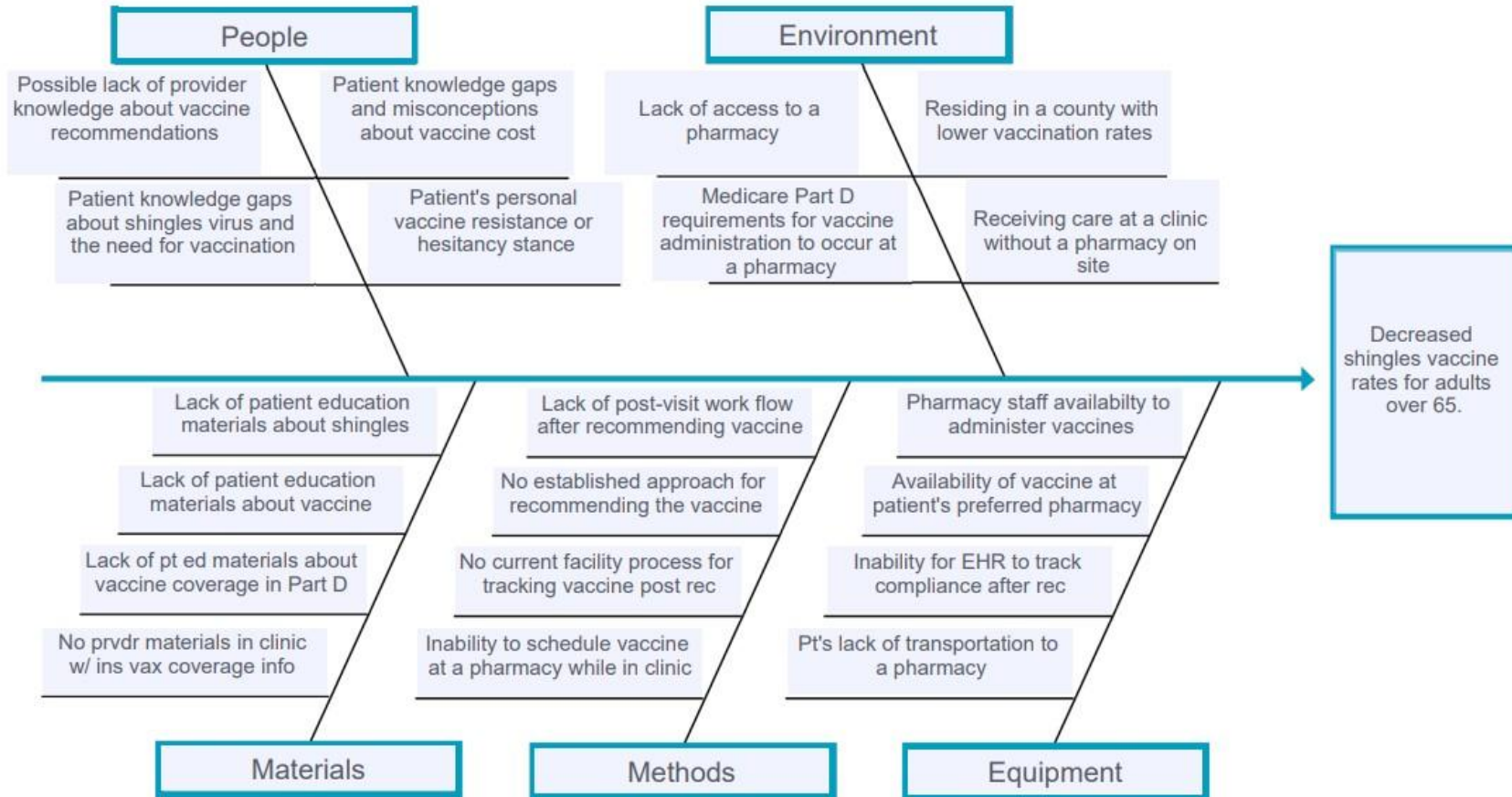
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Appendix A

Cause and Effect Diagram



Appendix B

Project Timeline

	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec-Mar
Finalize project design and approach (703A)		X						
Complete IRB determination or approval (703A)			X					
PDSA Cycle 1 (703B)							X	X
PDSA Cycle 2 (703B)								
PDSA Cycle 3 (703B)								
Final data analysis (703B)								X
Write sections 13-17 of final paper (703B)								X
Prepare for project dissemination (703B)								X

Appendix C

IRB Approval Letter

On 8/19/2024, the IRB reviewed the following submission:

Title of Study:	Improving Shingrix Vaccine Uptake for Medicare Part D Patients in the Primary Care Setting
Investigator:	Jonathan Soffer
IRB ID:	STUDY00027636
Funding:	None

The IRB determined that the proposed activity is not research involving human subjects. IRB review and approval is not required.

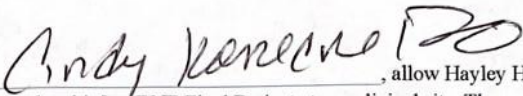
Appendix D

Clinical Site Letter of Support

Letter of Support from Clinical Agency

Date: 09/02/2024

Dear Hayley Haas,

This letter confirms that I, , allow Hayley Haas (OHSU Doctor of Nursing Practice Student) access to complete his/her DNP Final Project at our clinical site. The project will take place from approximately September 30, 2024 to January 1, 2025.

This letter summarizes the core elements of the project proposal, already reviewed by the DNP Project Preceptor and clinical liaison (if applicable):

- **Project Site(s):** Valley Family Practice – 3524 Heathrow Way, Medford, OR 97504
- **Project Plan: Use the following guidance to describe your project in a brief paragraph.**
 - **Identified Clinical Problem:** Shingles infection can lead to painful and prolonged pain symptoms after infection. Obtaining a shingles vaccine can protect patients from developing shingles infection or reduce the severity of symptoms if infection does occur. In the United States, the state of Oregon, and in Jackson County the rate of shingles vaccine uptake in adults over 65 is less than 15%. For Medicare Part D patients, the shingles vaccine is fully covered but must be obtained at a pharmacy. Needing to obtain the shingles vaccine outside of the clinic leads to reduced vaccine uptake.
 - **Rationale:** Interventions that address pharmacy access barriers have been shown to increase vaccine uptake. This includes helping patients schedule a vaccine appointment while in clinic, prescribing the vaccine to the patient's preferred pharmacy to be administered in the near future, and ensuring patients are aware that the vaccine is free with Medicare Part D insurance coverage.
 - **Specific Aims:** Improve Shingrix vaccine uptake for Medicare Part D patients through the implementation of a visit workflow that removes pharmacy obtained vaccine access barriers.
 - **Methods/Interventions/Measures:** The proposed methods of this project include identifying which patients are eligible for the Shingrix vaccine and have Medicare Part D coverage. From there, the proposed intervention includes implementing a post visit workflow that includes medical assistants helping patients schedule their vaccine appointment at their preferred pharmacy or having the provider e-scribe the vaccine to the patient's preferred pharmacy. The provider and/or medical assistant will document the patient's preferred method for decreasing vaccine access utilizing a standard template. One month following the patient's appointment Oregon IM Alert will be checked to determine if the patient received the vaccine. If the patient did not, then a medical assistant or the DNP student will reach out to the patient to inquire why the vaccine has yet to be obtained.
 - **Data Management:** Vaccine status will be obtained from Oregon IM alert, de-identified, and stored in an excel spreadsheet. Whether the chart note includes the post visit workflow template which includes the patient's choice of vaccine prescheduled appointment or vaccine prescription will be identified in an excel spreadsheet as "yes" or "no." This reason for the patient not obtaining the vaccine will be documented briefly in an excel spreadsheet and de-identified. All data and excel spreadsheets for this project will be protected by password protection.
 - **Site(s) Support:** The study site agrees to provide space to conduct data management activities if needed and provide space for educational sessions about the intervention for clinic providers and medical assistants from the DNP student. The study site also agrees to either access pertinent data for the project on the student's behalf or provide EMR access for data analysis purposes in accordance with HIPAA protocols. The study site agrees to provide reports as needed for project data analysis which could include patient insurance coverage and upcoming appointments.

During the project implementation and evaluation, Hayley Haas will provide regular updates and communicate any necessary changes to the DNP Project Preceptor.

Our organization looks forward to working with this student to complete their DNP project. If we have any concerns related to this project, we will contact Hayley Haas (haasha@ohsu.edu) and Jonathan Soffer, DNP, ANP (soffer@ohsu.edu) (student's DNP Project Chairperson).

Appendix E

Table and Figures

Figure E1

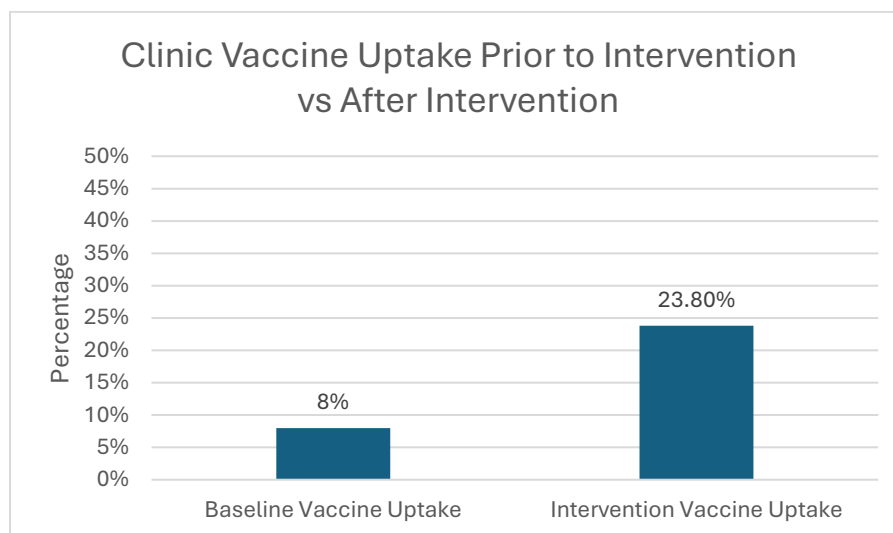


Figure E1. Bar graph depicting the clinic percentage of Shingrix vaccine uptake prior to and after implementation of the intervention.

Table E1

Number and Percentage of Shingrix Vaccine Recipients and Nonrecipients		
	Number of patients	Percentage
Total number of patients offered a Shingrix vaccine	67	
Patients who opted for a vaccine prescription	67	100.0%
Patients scheduled in clinic	25	37.3%
Patients scheduled in clinic that did not receive a vaccine	11	16.4%
Patients who received a vaccine	16	23.8%
Patients who did not receive a vaccine	51	76.1%
Reason		
Hesitancy	4	7.8%
Schedule conflict	25	49.0%
Illness	17	33.3%
Other	5	9.8%

Table E1. Table display of intervention data including total number of participants, number of vaccine recipients, nonrecipients, and number of patients categorized by vaccine uptake barrier.