

Barriers to HPV Vaccination in Rural Oregon: A Clinician Survey



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Introduction

Human Papillomavirus (HPV) is the most common sexually transmitted infection and can lead to several cancers¹ (figure 1), though vaccination can prevent these outcomes. Despite strong evidence of vaccine safety and effectiveness², vaccination rates remain low, especially in rural communities.³

% Attributed to HPV Infection

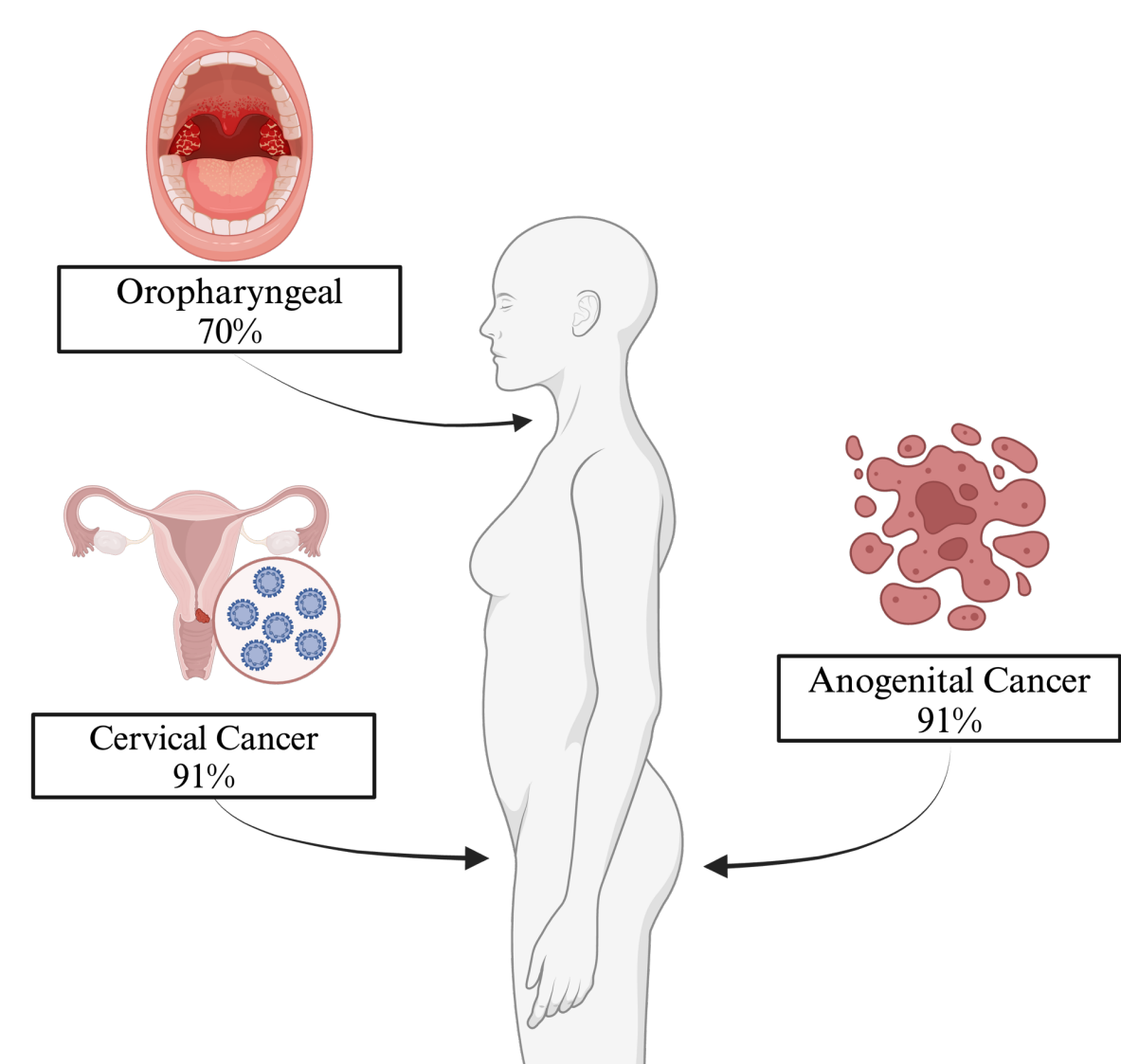


Figure 1 depicts HPV related cancers and their percentages (created with Biorender.com)

Adolescents across the United States aged 13-17 years have a 51% completion rate of the HPV vaccination series. Compared to routine vaccines such as Tdap (tetanus, diphtheria, and pertussis) and the meningococcal vaccine, which have completion rates of 88% and 74% respectively, the national HPV vaccination rate of 51% is significantly lower.³

HPV Vaccine Schedule and Dosing

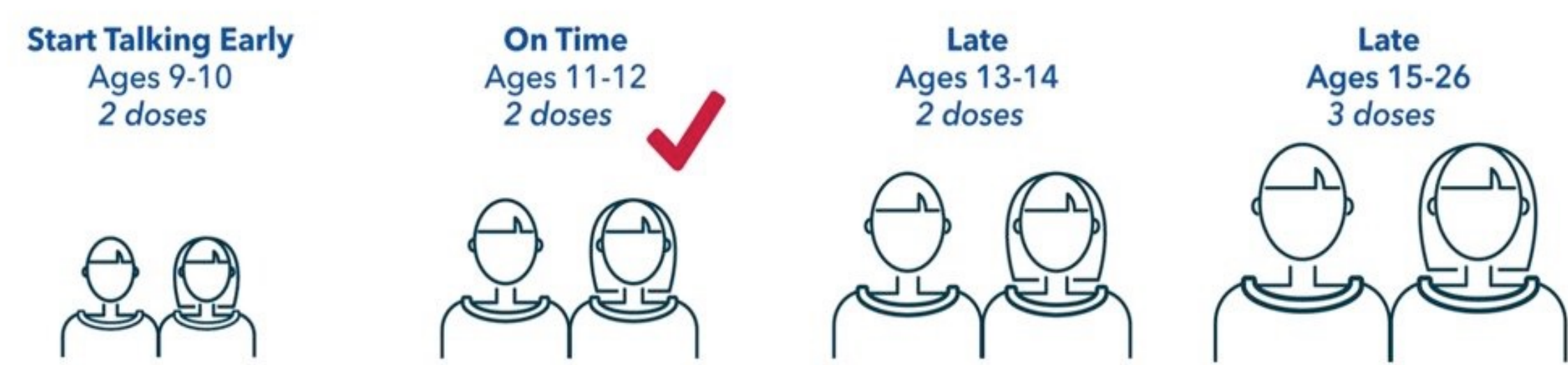


Figure 2 depicts HPV vaccination schedule⁴

HPV infection occurs for about 80% of patients throughout their lives. Starting the HPV vaccination series early (9-11 years old) can protect against infection before exposure occurs. Starting the series earlier reduces the number of doses required to 2 instead of 3 (figure 2).⁵

Objectives

- Identify what rural clinicians see as the most common barriers for patients to receive the HPV vaccine and how that differs between high versus low vaccination rate counties.
- Compare successful strategies across rural counties with high versus low vaccination rates
- Compare reasons patients are motivated to get vaccinated for HPV across rural counties with high versus low vaccination rates

References

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Methods

- Design: Cross-sectional Qualtrics survey
- Participants: Oregon primary care clinicians (n = 18) in rural counties listed below (table 1)
 - Rural counties: counties with populations under 35,000
 - High vaccination rate county >60% series completion for 13-17 year-olds
 - Low vaccination rate county <50% series completion for 13-17 year-olds
- Measures: Perceived barriers, patient hesitancy, strategies to improve vaccination rate
- Analysis: Fisher's exact test and descriptive statistics

County	High vs Low vaccination rate	Population	Locations	Clinicians	Responses
Malheur	High	~32,000	10	48	5
Jefferson	High	~25,500	5	27	2
Hood River	High	~23,700	8	63	3
Tillamook	Low	~27,000	6	29	5
Curry	Low	~22,700	9	24	3
Crook	Low	~27,300	2	24	0

Table 1 includes high vs low category, populations of surveyed counties, depicts number of locations and clinicians contacted during study, as well as responses. Population data obtained from U.S. Census Bureau. Clinic and clinician counts compiled by study investigators from publicly available sources.

Some rural counties in Oregon report higher rates of HPV vaccination, more comparable to urban areas, challenging typical trends (figure 3).⁶ This study identifies the barriers rural healthcare clinicians in Oregon face when encouraging HPV vaccination, using survey data.

This study was primarily exploratory and descriptive

HPV complete immunization rates among 13-17 year olds : 2024

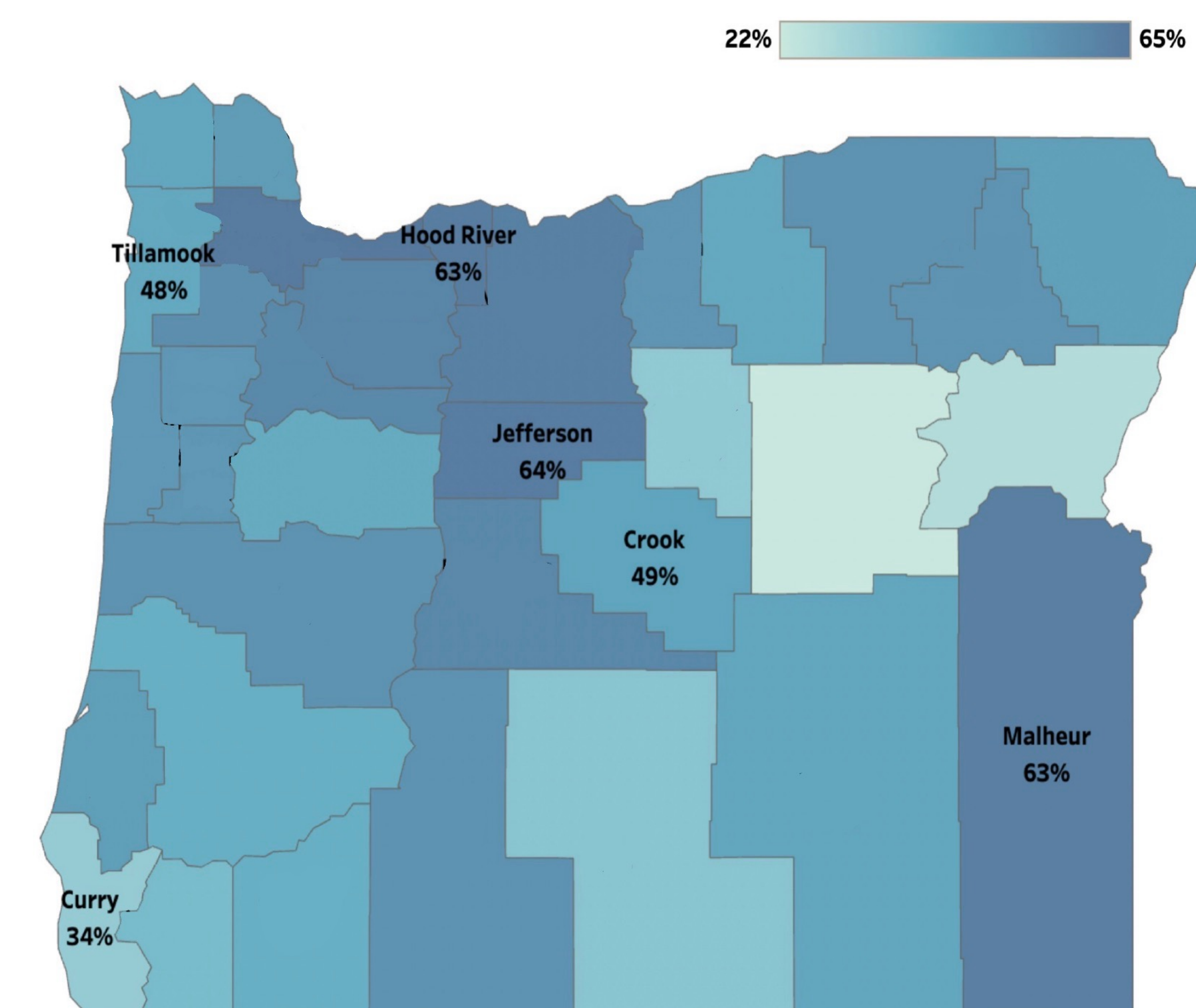


Figure 3 depicts HPV vaccination rates across surveyed Oregon counties⁶

Results

- The survey response rate was 8.4% (18/215)
- 83% report frequent vaccine hesitancy by patient/patient family
- 94% initiate HPV vaccination discussion at ages 9-14
- 100% report completion of series once started
- 94% report considering vaccination extremely/very important

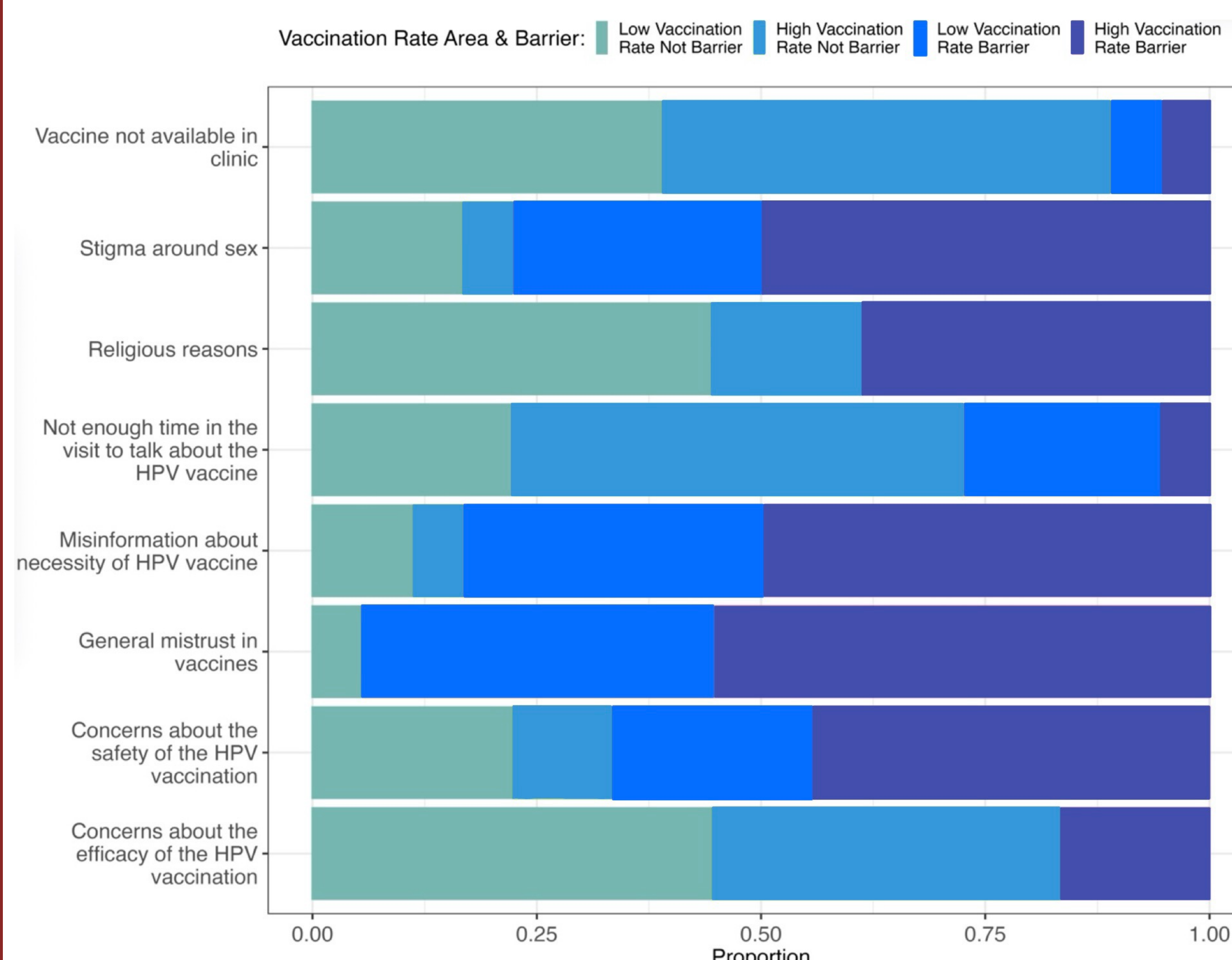


Figure 4 depicts barriers to vaccination in low vs high vaccination rate counties by proportion

Barrier	OR*	95% CI (lower-upper)	p-value
Vaccine not available in clinic	0.79	0.01-69.64	1
Stigma around sex	4.9	0.3-313.51	0.2745
Religious reasons	Inf. [†]	2-Inf. [†]	0.0040
Not enough time in the visit to talk about the HPV vaccine	0.13	0.002-1.82	0.1176
Misinformation about necessity of the HPV vaccine	2.82	0.12-195.99	0.5588
General mistrust in vaccines	Inf. [†]	0.03-Inf. [†]	0.4444
Concerns about the safety of the HPV vaccination	3.68	0.35-58.14	0.3213
Concerns about the efficacy of the HPV vaccination	Inf. [†]	0.35-Inf. [†]	0.2157

*Odds ratio interpreted as comparing the odds of specific barrier being higher (OR>1)/lower (OR<1)/the same (OR=1) when practicing in a high vaccination rate area compared to a low vaccination rate area.
[†]Infinity—one of the cells contained a zero.

Table 2 depicts a table summary of the odds ratio (OR), 95% confidence interval (CI), and p-value from the Fisher's Exact test

Strategies clinicians use to introduce the HPV vaccine to patients:	High vaccination rate county	Low vaccination rate county
Cancer prevention	Yes	Yes
Routine vaccine framing	Yes	Yes
Patient education	Yes	Yes
Motivational interviewing	Yes	No
Reducing stigma	Yes	Yes
Early introduction	Yes	No
Personal recommendation	Yes	No

Table 3 depicts clinician strategies to introduce the HPV vaccine in low vs high vaccination rate counties

Results continued

Reasons patients are motivated to get the HPV vaccine	High vaccination rate county	Low vaccination rate county
Cancer prevention	Yes	Yes
Personal/family experience	Yes	Yes
General disease protection	Yes	Yes
Vaccine schedule	Yes	Yes
Vaccine trust	Yes	No

Table 4 depicts patient reported reasons to get the HPV vaccine in low vs high vaccination rate counties

Discussion

Clinicians in rural Oregon frequently encounter barriers to HPV vaccination, with the majority reporting frequent vaccine hesitancy despite strong support for vaccination and high completion rates once initiated.

These findings suggest that the primary challenge lies not in follow-through, but in **initial acceptance and counseling during clinical encounters** (Table 3).

Common barriers – including stigma around sex, misinformation about necessity of HPV vaccine, and general mistrust in vaccines (Figure 4) – highlight opportunities for targeted communication strategies. Qualitative findings suggest that approaches such as **cancer prevention framing, routine vaccination normalization, and motivational interviewing/patient-centered discussions** may help improve uptake. Also suggest that patient motivations such as **cancer prevention** should be emphasized while **vaccine trust** should be encouraged (table 4).

Although the differences in clinician perceived barriers between high and low vaccination rate counties were explored, no significant distinctions were identified (Table 2).

Limitations:

The small sample size (low response rate) limits the ability to detect significant differences, and the study was underpowered. As a result, observed similarities and differences should be interpreted with caution.

Future directions

- Larger sample size across additional rural regions
- Development of targeted clinician counseling tools
- Evaluation of intervention strategies
- Share findings with rural clinicians throughout the state to enhance their patient engagement practices.

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