

Longitudinal Uptake of the Human Papillomavirus Vaccine Among Gay, Bisexual, and Other Men Who Have Sex with Men in British Columbia, Canada 2012-2019

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Summit
Sommet

Background

- Gay, bisexual, and other men who have sex with men (gbMSM) have a high prevalence of anogenital HPV infections (>60%) and even greater among those living with HIV (>80%)¹
- Relatedly, 80%-90% of anal cancers, and 40-50% of penile cancers are attributable to HPV infections that are preventable with vaccination²
- In September 2015, British Columbia expanded the HPV-vaccination program to include gbMSM ≤26 years of age.³
- We assessed trends in and correlates of HPV vaccine uptake from 2012-2019 in a cohort of gbMSM in Vancouver.

Methods

Protocol and Participants

- The Momentum Health Study is a longitudinal bio-behavioural prospective cohort study of gbMSM in Vancouver, British Columbia. Respondent driven sampling (RDS) was used to recruit gbMSM from February 2012 to February 2015, prior to the launch of the targeted and publicly funded HPV vaccine program. Follow-up visits up to July 2019 were included
- Study visits occurred every six months where participants completed computer-assisted self-interviews assessing sociodemographic, psychosocial, and behavioural factors and nurse-administered HIV/STI testing

Dependent and Independent Variables

- The primary outcome of interest was self-reported receipt of at least one dose of HPV vaccine.
- The explanatory variables included socio-demographic factors, sexual behaviors, and healthcare knowledge and utilization, and connectedness to the gay community.

Statistical Analysis

- Univariable mixed-effects logistic regression was performed to evaluate trends in self-reported HPV vaccine uptake stratified by age, and multivariable mixed-effects Poisson regression was used to identify correlates of HPV vaccine uptake.

Results

Demographics

- Of the 719 participants that completed baseline visit, 650 reported HPV vaccination status. This sample had 23% gbMSM living with HIV, was predominately White (67.9%), cisgender (97.3%), reported an annual income of < \$30,000 (75.0%), and had completed some post-secondary education (65.8%)

Factors associated with HPV vaccination at enrolment, 2012-2015

- 31 participants reported vaccination at enrolment. Participants that were Asian (12.7%; p=.035), did not identify as cisgender men (13.4%; p=0.002), reported annual income of ≥\$60,000 CAD (6.2%; p=0.015), had a primary healthcare provider to whom they had disclosed their sexuality (4.9%; p=0.011), and had knowledge of HIV treatment as prevention (TasP) (4.1%; p=0.028) reported the greatest uptake in their respective categories.

Correlates and Trends of HPV vaccination, 2012-2019

- HPV-vaccination incidence rate ratios for selected factors are shown in **Table 1**. HPV uptake was significantly associated with age ≤26 years, involvement in gay community activities, engagement in recent sex work, and increased knowledge/uptake of sexual healthcare.
- HPV vaccine prevalence among gbMSM, stratified by age, is shown in **Figure 1**. HPV vaccination increased from 4% in 2012 to 28% in 2019 among gbMSM >26 years, and from 9% in 2012 to 20% in 2017 among gbMSM ≤26 years.

Table 1. Factors Associated with HPV Vaccine Uptake During Follow-up

	HPV uptake		Univariable			Multivariable		
	n	Rate Ratio (RR)	95% CI	p-value	Adjusted RR	95% CI	p-value	
Uptake period								
Before 2015 Sept	50	Ref			Ref			
2015 Sept or After	22	1.86	1.13, 3.08	0.015	1.82	1.06, 3.12	0.030	
Age								
≤ 26 years	17	Ref			Ref			
27-44 years	41	0.84	0.48, 1.49	0.555	0.73	0.40, 1.35	0.320	
≥45 years	14	0.28	0.14, 0.57	0.001	0.26	0.11, 0.57	0.001	
STI Tested P6M								
No	22	Ref			Ref			
Yes	50	2.60	1.57, 4.29	<0.001	2.72	1.60, 4.60	<0.001	
Heard of PEP								
No	2	Ref			Ref			
Yes	70	8.78	2.15, 35.83	0.003	5.50	1.31, 23.09	0.020	
Sex Work in P6M								
No	66	Ref			Ref			
Yes	6	2.42	1.05, 5.58	0.039	2.59	1.08, 6.19	0.033	
Gay Sports Teams								
Not in the P6M	60	Ref			Ref			
≤1 per month	2	0.78	0.19, 3.20	0.733	0.62	0.15, 2.56	0.506	
>1 per month	10	2.72	1.39, 5.31	0.003	2.31	1.15, 4.64	0.019	
Attended Targeted Gay, Bi, or Trans Groups/Meetings								
Not in the P6M	41	Ref			Ref			
≥1 in the P6M	31	1.83	1.15, 2.92	0.011	1.71	1.04, 2.79	0.033	

P6M = past 6 months

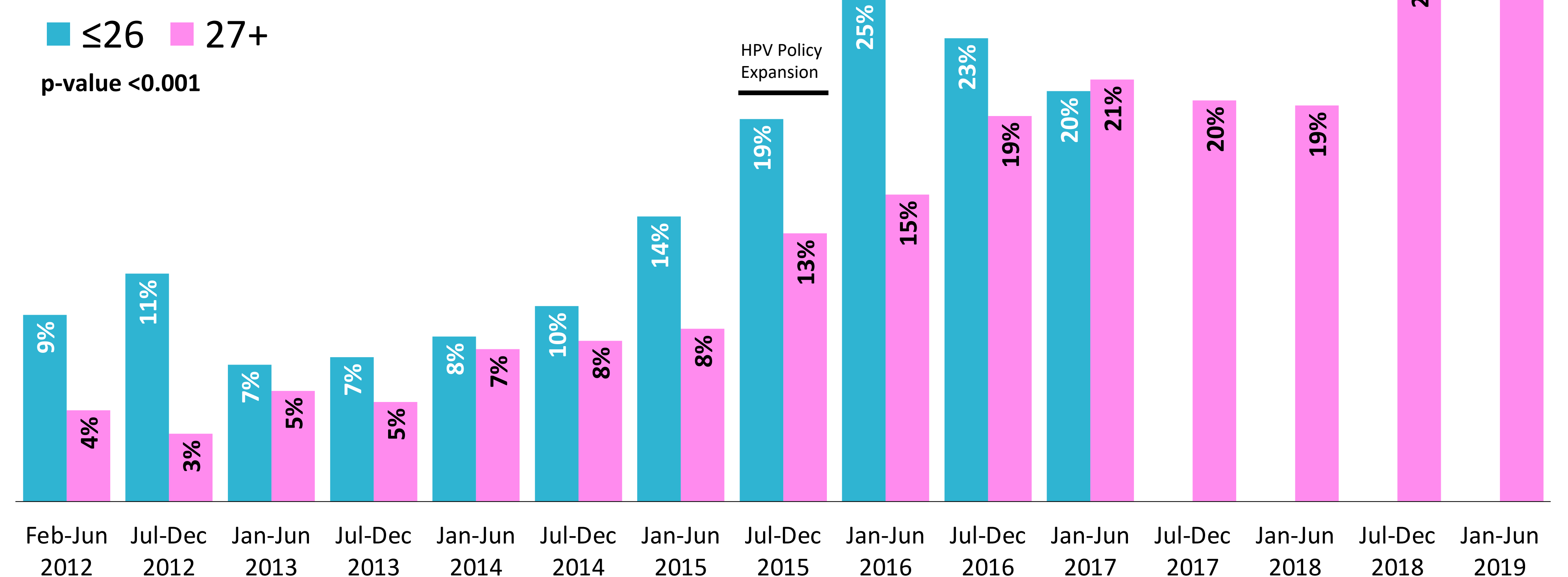


Figure 1. Proportion of gbMSM with HPV Vaccine Uptake Over Time

Conclusions

- Although increases in vaccination uptake were seen from 2012-2019, HPV vaccination uptake remained below 28% up to 2019 among our cohort of gbMSM in Vancouver
- Additional interventions and efforts are needed to increase HPV vaccine coverage to provide the same level of protection seen in heterosexual cohorts.
- Findings may help guide targeted public health efforts towards gbMSM likely to become vaccinated
- Healthcare providers are asked to increase recommendations/prompts for HPV vaccination and public health services are urged to implement integration of vaccination with STI testing services.

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Reference: (1) Sauvageau C, Dufour-Turbis C. HPV vaccination for MSM: Synthesis of the evidence and recommendations from the Québec Immunization Committee. *Hum Vaccines Immunother.* 2016. (2) Canadian Cancer Society. HPV and Cancer. <https://www.cancer.ca>. (Accessed October 2020) (3) Immunize BC. HPV (Human Papillomavirus). British Columbia: Evidence-based immunization information and tools for B.C. residents. <https://immunizebc.ca/hpv> (Accessed October 2020)