Impact of Dental Visit Vaccination on Patterns of Primary Care Utilization in Federally Qualified Health Centers

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Background

Medical-dental Integration (MDI) is an emerging platform designed to bolster vaccination rates among children. With successes in other non-traditional vaccination settings including retail pharmacies and schools, the MDI model was tested in the setting of a large, integrated, safety-net healthcare system, serving predominantly publicly insured and uninsured populations in Denver, Colorado. This novel study found an 8.6% increased likelihood of receiving a dose of the human papillomavirus (HPV) vaccine in the setting of MDI utilization. Still, the question remains if administering vaccines outside of the medical home will impact primary care utilization.

Objective

To characterize patterns of primary care utilization before and after receipt of a vaccination with an oral health provider at a federally qualified health center (FQHC) in Denver, CO.

Design & Methods

Design: Retrospective cohort study
Setting: Denver Health and Hospital Authority, large integrated healthcare system at six integrated dental clinics and 11 federally qualified healthcare centers (FQHCs).
Population: Patients ages 9-17 who had at least one dental appointment and were eligible to receive an HPV vaccine between June 1, 2022 and May 31, 2023.
Statistical Analysis: Primary care utilization patterns were analyzed between June 1, 2021 - May 31, 2022 and June 1, 2023 - May 31, 2024. Chi square models were used to compare sociodemographic components and primary care utilization patterns among patients who received or declined HPV vaccination at a dental visit. p<0.05 was statistically significant.

Results

Among the 1694 eligible patients during the intervention period, 375 same-day HPV vaccines were administered. Most eligible patients were under 12 years of age (69.5%), identified as Hispanic (59.4%), and were insured by Medicaid (78.3%). Patients who received a vaccine were more likely to be male, identify as Hispanic, speak Spanish as their primary language, and be born outside of the United States (Table 1). Almost half of the patients did not have a well child visit in the year prior to or the year following the intervention (43.7% and 46.6%, respectively) (Table 2). There were no significant differences in primary care utilization between patients who received an HPV vaccination at a dental visit and those who declined.

Table 1: Sociodemographic characteristics for patients 9-17 years old that were eligible to receive an HPV vaccine during a dental visit from June 1, 2022 to May 31, 2023.

	Total (N=1694)		Not vaccinated during intervention (N=1319)		Vaccinated during intervention (N=375)		p
Age at time of visit, years	n	%	n	%	n	%	
9-11	1177	69.5	920	69.8	257	68.5	
12-14	387	22.9	290	22.0	97	25.9	
15-17	130	7.7	109	8.3	21	5.6	0.096
Sex (Legal)							
Female	833	49.2	671	50.9	162	43.2	
Male	861	50.8	648	49.1	213	56.8	0.0087
Race/Ethnicity*							
White, Non-Hispanic (NH)	124	7.5	93	7.3	31	8.4	
Black, NH	390	23.7	335	26.3	55	15.0	
Hispanic	977	59.4	728	57.1	249	67.7	
Other/Multiple Race, NH	153	9.3	120	9.4	33	9.0	<0.0001
Primary Language*							
English	804	47.5	636	48.3	168	44.8	
Spanish	642	37.9	474	36.0	168	44.8	
Non English, Non Spanish (NENS)	247	14.6	208	15.8	39	10.4	0.0019
Country of Birth*							
United States	1245	74.8	986	76.3	259	69.8	
Outside of the United States	419	25.2	307	23.7	112	30.2	0.0117
Insurance Type							
Commercial	37	2.2	31	2.4	6	1.6	
Medicaid	1326	78.3	1043	79.1	283	75.5	
Discount/Self Pay (Uninsured)	331	19.5	245	18.6	86	22.9	0.1302

Percentages are calculated for those with data available for that characteristic. *Race/ethnicity missing for 50 patients (<1%), language missing for 1 patient (<1%), birth country missing for 30 patients (1.8%).

Table 2: Well child visits in pre-intervention period (June 1, 2021 - June 1, 2022) and post intervention period (May 31, 2023 - May 31, 2024) among patients eligible to receive an HPV vaccine during a dental visit.

	Total (N=1694)		Not vaccinated during intervention (N=1319)		Vaccinated during intervention (N=375)		p
During Pre-Intervention Period	n	%	n	%	n	%	
No well child visits	741	43.7	581	44.1	160	42.7	
One or more well child visits	953	56.3	783	56.0	215	57.3	0.6376
During Post-Intervention Period							
No well child visits	789	46.6	609	46.2	180	48.0	
One or more well child visits	905	53.4	710	53.8	195	52.0	0.5576

Discussion

Our study found no significant impact on primary care visits following HPV vaccinations administered through an MDI program. Non-traditional vaccine programs, such as the Federal Retail Pharmacy Program and school-based interventions, have demonstrated cost-effective improvements in vaccination coverage. The expansion of these programs to include vaccines like HPV has raised concerns about potential reductions in primary care visits, which are critical for preventive pediatric care.

Primary care utilization was unchanged in the year before and after vaccination. These results suggest that vaccine expansion initiatives can support increasing adolescent vaccination rates without compromising preventative care that occurs during well child visits. MDI and other non-traditional vaccine programs exemplify effective interprofessional collaboration enhances patient care and accessibility. Investments in these programs offer a promising avenue to improve healthcare delivery.

Additionally, this work found that patients receiving HPV vaccines via MDI were more likely to be Hispanic, male, primarily Spanish-speaking, and born outside the U.S. While the study was conducted in a FQHC, the findings suggest that these programs effectively reach underserved populations. Further research is needed to assess generalizability, but our study provides evidence against the concern that non-traditional vaccination programs reduce primary care utilization in these groups.

Conclusions

This study explored whether receipt of an HPV vaccination via MDI in a FQHC had adverse effects on primary care utilization. There was no difference in primary care utilization among patients who received HPV vaccination at an oral health appointment compared to those who declined vaccination. This study demonstrates that medical-dental integration is a viable option for increasing vaccination rates without concern for detriment to primary care utilization.

References

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