



# Initiation of HPV vaccination at age 9: A deep dive into five health system success stories

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## Background

- Despite mounting evidence in support of the HPV vaccine’s efficacy, only 39% of 9-17-year-olds had received at least one dose in 2022.<sup>1</sup>
- Earlier initiation of the vaccine (at ages 9-10 as opposed to ages 11-12) is associated with increased likelihood of completing the series by age 15 and increased immune response, among other benefits.<sup>2-4</sup>
- Several U.S. healthcare organizations have implemented earlier initiation practices, initiating HPV vaccination at ages 9-10 rather than 11-12, resulting in improved HPV vaccination rates.<sup>5</sup>

## Methods

- Recruited five healthcare organizations (HCOs) with demonstrated success in vaccinating 9-10-year-old children against HPV.
- Surveyed providers and staff who deliver or support the delivery of HPV vaccines for 9-10-year-old patients at each HCO.
- Interviewed two leaders of pediatric HPV vaccination initiatives at each HCO.
- Conducted qualitative content analysis of open-ended survey responses and analyzed quantitative data resulting from closed-ended survey questions.
- Utilized data reduction methods to summarize interview themes.

## Study Objective: Understand and disseminate best practices for HPV vaccination beginning at age 9

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## Results

### Provider/Staff Surveys

**Table 1. Characteristics of survey respondents: Staff/provider type, HCO, years of engagement, and familiarity with HPV vaccination guidelines**

	HCO 1 (n = 49)	HCO 2 (n = 143)	HCO 3 (n = 53)	HCO 4 (n = 50)	HCO 5 (n = 202)	Total (n = 497)	Years supporting adolescent vaccination, mean (sd)	High familiarity with HPV vaccination guidelines <sup>†</sup>
Physician/advanced practice provider	27 (55%)	63 (44%)	20 (38%)	15 (31%)	74 (36%)	199 (40%)	11.4 (9.6)	180 (91%)
Nurse/medical assistant	22 (45%)	44 (31%)	32 (60%)	23 (47%)	114 (57%)	235 (48%)	6.7 (7.5)	184 (79%)
Support staff <sup>*</sup>	0 (0%)	35 (25%)	1 (2%)	11 (22%)	13 (7%)	60 (12%)	9.2 (8.6)	29 (48%)
Years supporting adolescent vaccination, mean (sd)	10.5 (10.0)	9.9 (9.0)	4.8 (5.4)	7.5 (8.4)	8.9 (8.7)	8.8 (8.7)	--	--
High familiarity with HPV vaccination guidelines <sup>†</sup>	43 (88%)	110 (78%)	39 (74%)	37 (76%)	166 (82%)	395 (80%)	--	--

<sup>\*</sup>Support staff includes administrative, care coordination, quality improvement/population health, health informatics, office management.

<sup>†</sup>Self reported very or extremely familiar on a 5-point scale from ‘not familiar at all’ to ‘extremely familiar.’ HCO=healthcare organization; sd=standard deviation.

**Table 2. Factors impacting HPV vaccination rates in 9-10-year-olds, according to staff/providers**

Main themes	Subthemes	Examples
Patient/family factors	Education	Handouts during visits and visuals, e.g., posters on clinic walls.
	Preparation	Pre-visit marketing and outreach. Discussion of HPV vaccination at earlier visits (letting families know it will be offered at the age 9 visit).
	Barrier reduction	Scheduling, e.g., vaccine-only appointments.
Healthcare organization factors	Provider/staff education	Frequent education and reminders with broad reach to all clinic staff. Provide specific data and language to use with patients and families.
	Provider/staff buy-in	Consistency across all relevant roles. Strong recommendation.
	Protocol modification	Standardization and automation.
Communication factors	Repetition	Discussion by multiple staff. Discussion at multiple visits.
	Message framing	Focus on cancer prevention rather than sex. Benefits of vaccination and early vaccination. Presumptive approach. Treat the same as other vaccines.
	Addressing concerns	Combatting misinformation. Addressing hesitancy.

### Interviews with Vaccine Initiative Leaders

*Seeing the data--where you were pre- [transition to age 9] and where you are now, organizationally, by practice and individually--has been quite impactful for a lot of our doctors.*  
- CMO

*It's gonna need **energy**. You're gonna have to continue to **reinvigorate** it because you're gonna have staff turnover. You're gonna have new providers. You're gonna have new people, and that message may or may not get delivered to them.*  
- Quality Director

**Table 3. Most common intervention approaches across five HCOs**

Intervention Type		Description	HCO 1	HCO 2	HCO 3	HCO 4	HCO 5
Preparation	Internal buy-in	Obtaining leadership and/or staff/provider buy-in	X	X	X	X	X
	Data	Regular data sharing and/or availability of data to staff/providers	X	X	X	X	X
Provider/staff facing interventions	Automation	Update EHR and/or standing orders to age 9	X	X	X	X	X
	Education and training	Availability of regular education, training, reminders, educational materials	X	X	X	X	X
	Communication guidance	Providing scripts/talking points and/or educating on presumptive approach	X	X	X	X	X
Patient facing interventions	Educational materials	Materials for patients (handouts, posters) and/or public (website, podcast)	X	X	X	X	X
	Focus on second dose	Scheduling of second dose while in office or 6-month reminder timers		X	X	X	
	Patient outreach/preparation	Outreach for overdue patients and/or preparation before age 9 visit	X	X	X	X	X

## Discussion and Conclusion

- Open-ended survey questions centered around HCO successes and challenges, training, provider and staff communication/engagement successes, reasons for refusal, and disparities. Three main themes emerged, all of which were indicated to impact the success of HPV vaccination at age 9:
  - Patient and family factors (e.g., education, preparation in advance of age 9 well child visits, and reducing barriers to visits at which vaccination can be offered)
  - Healthcare organization factors (e.g., regular provider and staff facing education, provider and staff buy-in, and protocol changes)
  - Communication factors (e.g., repetition of messaging by multiple staff at multiple visits, tactics for message framing, and addressing misinformation and hesitancy)
- Insights gleaned from interviews that sought to understand how HCOs were successful in initiating HPV vaccination at age 9 included that all 5 HCOs:
  - Prepared for the shift to initiation at age 9 by getting internal buy-in.
  - Regularly shared data with providers/staff or had data available to share.
  - Implemented provider/staff facing interventions, e.g., updated EHR/standing orders to age 9, provided education/educational materials, encouraged a presumptive approach.
  - Implemented patient facing interventions, e.g., provided educational materials for patients/the public, focused on getting patients in for their second dose, outreached to prepare patients for their age 9 visit or to overdue patients.
- Organizations hoping to implement initiation of HPV vaccination at age 9 should consider the factors that impact HPV vaccination success and common interventions when planning their approach.

*Posters in the clinic are super helpful. Patients and families are already thinking about it before I get in the room.*  
– Physician

*The conversation regarding the benefits of the HPV vaccine starts at the ages 6–8-year wellness visits. This allows parents adequate time to research it and make an informed decision.*  
– Nurse

*Once the EMR [electronic medical record] was optimized to push 'HPV vaccine' as part of regular care, the challenge was reduced because variation in provider recommendations became less relevant. Every patient has the 'care gaps section' **and every eligible patient was pushed the same standard of care** [within the EMR].*  
– Physician

*If there is resistance, I make sure to emphasize ‘general’ cancer prevention [and I share]: ‘**it is so cool there is a vaccine that can prevent cancer.**’*  
– Nurse