


HPV Vaccination Uptake, Hesitancy, and Refusal: Observations of Health-Care Professionals During the COVID-19 Pandemic

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Abstract

HPV vaccination is highly effective at preventing several types of cancer; however, vaccine uptake is suboptimal. The COVID-19 pandemic has affected participation in cancer prevention measures such as HPV vaccination. To assess changes and barriers to HPV vaccination during the COVID-19 pandemic, we conducted a statewide cross-sectional survey of health-care professionals (HCPs) in Texas. Specifically, we evaluated changes observed by HCPs regarding HPV vaccination during the COVID-19 pandemic: 1) hesitancy, 2) refusal, and 3) uptake. Decreased HPV vaccination uptake were reported by 19.3% of HCPs, whereas increased HPV vaccination hesitancy and refusal were reported by 17.1% and 14.8% of HCPs in Texas, respectively. The COVID-19 pandemic had a negative impact on HPV vaccination. Our study identified barriers to HPV vaccination that are unique to the COVID-19 pandemic.

The COVID-19 pandemic has spanned over 2 years, disrupting the usual way of life for many, including the ability to participate in crucial cancer prevention activities such as HPV vaccination and cancer screening. HPV vaccination is highly effective at preventing several cancers (1). Yet, the uptake of this vaccine is suboptimal in the United States (2), with this poor uptake further exacerbated during the COVID-19 pandemic (3). According to a Centers for Disease Control and Prevention study, compared with the 2 years preceding the pandemic, HPV vaccine doses administered from March to May of 2020 declined by a median of 63.6% among children 9-12 years and 71.3% among teenagers (3). Hence, this study aims to describe changes and barriers to HPV vaccination during the COVID-19 pandemic observed by physicians and other health-care professionals (HCPs) in Texas.

Data for this study were derived from a statewide cross-sectional survey of HCPs in Texas (n = 1283). Survey instruments were developed at MD Anderson Cancer Center. The study population included physicians in the specialties of family and internal medicine, obstetrics/gynecology, and pediatrics as well as physician assistants, nurse practitioners, and nurses. Contact information for HCPs employed in Texas were obtained

from LexisNexis Master Provider Referential Database. The survey was administered between January and April 2021, approximately 1 year into the COVID-19 pandemic. Ethical approval was obtained following review by the MD Anderson institutional review board, and all participants provided written informed consent.

The index study evaluated changes in HPV vaccination behaviors and uptake as observed by HCPs during the COVID-19 pandemic. Respondents were asked, "During the COVID-19 pandemic, I have observed that..." regarding HPV vaccination: 1) hesitancy, 2) refusal, and 3) uptake. Response options were "increased," "decreased," "no change," or "not sure." HCPs who observed negative changes (ie, increases in hesitancy and refusal) were then asked for the reasons cited by patients. This was achieved using the survey question, "What are some of the reasons given by patients/parents for the observed change(s) in HPV vaccination during the COVID-19 pandemic?" Response options were "increased mistrust of HPV vaccine," "difficulties in access to HPV vaccination due to the pandemic," "difficulties in transportation during the pandemic," "difficulties in scheduling clinic visit during the pandemic," and "fear of contracting coronavirus during the clinic visit."

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Table 1. Health-care provider–observed changes in HPV vaccination during the COVID-19 pandemic in Texas

Characteristics	HPV vaccination hesitancy			HPV vaccination refusal			HPV vaccination uptake					
	No.	Increased ^a , %	Decreased ^a , %	Unchanged ^a , %	No.	Increased ^b , %	Decreased ^b , %	Unchanged ^b , %	No.	Increased ^c , %	Decreased ^c , %	Unchanged ^c , %
Overall sample	730	17.1	7.0	75.9	715	14.8	5.6	79.6	699	7.2	19.3	73.5
Facility type												
University teaching/af- filiated hospital	154	19.5	3.2	77.3	146	17.8	3.4	78.8	144	4.2	25.0	70.8
Faith based	12	16.7	0.0	83.3	11	18.2	9.1	72.7	11	9.1	18.2	72.7
Federally qualified health center	69	18.8	14.5	66.7	70	20.0	14.3	65.7	64	17.2	9.4	73.4
Group practice	289	14.9	5.9	79.2	290	12.4	4.1	83.4	283	8.5	17.7	73.9
Employed physician practices	43	16.3	11.6	72.1	40	12.5	10.0	77.5	42	2.4	23.8	73.8
City/county public health-care facility	30	16.7	16.7	66.7	28	14.3	10.7	75.0	29	3.4	34.5	62.1
Solo practice	95	18.9	6.3	74.7	94	14.9	3.2	81.9	92	6.5	16.3	77.2
Other	38	18.4	7.9	73.7	36	13.9	5.6	80.6	34	0.0	17.6	82.4
Provider type												
Family physician	141	17.7	8.5	73.8	138	14.5	7.2	78.3	137	7.3	26.3	66.4
Pediatrician	188	11.7	3.2	85.1	186	9.7	4.3	86.0	184	6.0	14.7	79.3
Internal medicine	12	25.0	8.3	66.7	12	33.3	8.3	58.3	10	20.0	10.0	70.0
Gynecologist	50	12.0	2.0	86.0	50	10.0	4.0	86.0	49	12.2	16.3	71.4
Nurse practitioner/ad- vanced nurse practitioner	223	20.6	10.3	69.1	218	17.0	6.4	76.6	211	5.7	19.9	74.4
Physician assistant	93	21.5	7.5	71.0	89	21.3	4.5	74.2	87	8.0	18.4	73.6
Other	23	13.0	4.3	82.6	22	13.6	4.5	81.8	21	9.5	23.8	66.7

^aResponse to the survey question “During the COVID-19 pandemic, I have observed that ... HPV vaccination hesitancy has...”

^bResponse to the survey question “During the COVID-19 pandemic, I have observed that ... HPV vaccination refusal has...”

^cResponse to the survey question “During the COVID-19 pandemic, I have observed that ... HPV vaccination uptake has...”

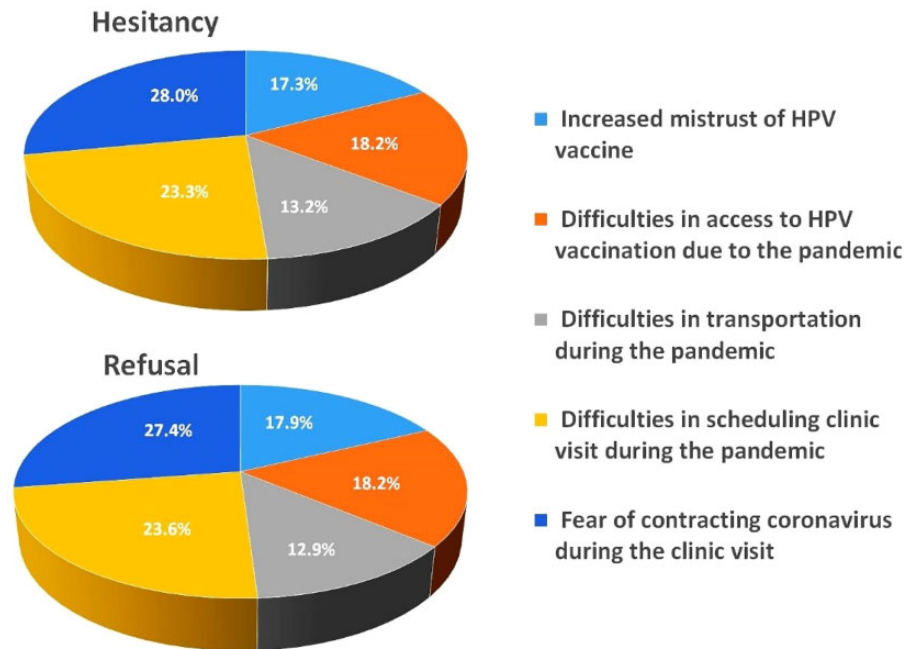


Figure 1. Reasons cited for hesitancy and refusal of HPV vaccination during the COVID-19 pandemic.

Survey frequencies were used to estimate the proportional distribution of changes observed by HCPs regarding HPV vaccination 1) uptake, 2) hesitancy, and 3) refusal. Among HCPs who observed increased HPV vaccination hesitancy and refusal, survey frequencies were then used to determine the proportional distribution of the cited reasons for HPV vaccination hesitancy or refusal during the pandemic. All statistical analyses were conducted using R version 3.5.2.

Overall, 730 HCPs responded to the study question of interest (Table 1). Most respondents indicated they work in a group practice setting (39.6%) or university teaching/affiliated hospitals (21.1%). Approximately 19.3% of HCPs in Texas observed decreases in HPV vaccination uptake. Observed increases in HPV vaccination hesitancy and refusal were reported by 17.1% and 14.8% of HCPs, respectively. Among HCPs who observed increased hesitancy, fear of contracting COVID-19 during the clinic visits and difficulties in scheduling clinic visits during the pandemic were the reasons most cited by HCPs for patients' increased hesitancy (28.0% and 23.3%, respectively) and increased refusal (27.4% and 23.6%, respectively) (Figure 1).

Findings of the HCP survey suggest that the COVID-19 pandemic has had a negative impact on HPV vaccination uptake in Texas. Before the pandemic, safety concerns and side effects had been identified as leading reasons for HPV vaccination refusal and hesitancy within the general US population (4). This study identifies barriers specific to the ongoing pandemic. In addition to barriers identified in this study, contributors to decreased HPV vaccination rates observed during the pandemic include challenges with vaccine delivery and a renewed surge of vaccination misinformation over the past 2 years (5). Hence, unsurprisingly, HCPs also observed that HPV vaccination hesitancy and refusal (which are indicators of mistrust) increased during the pandemic.

With the pandemic still ongoing, findings will provide valuable insights for public health interventions and HCP-patient interactions aimed at helping patients overcome new barriers to HPV vaccination. Concerns about being at risk of COVID-19

infection during clinic visits are valid. Hence, public health agencies should work with health-care facilities to ensure patient visits are safe; broadcasting such safety measures will enhance public confidence. In addition, the American Cancer Society has proposed strategies to promote HPV vaccination during the COVID-19 pandemic (6).

This study is not without limitations. Although physicians and other HCPs are generally highly educated individuals, the present study relies on their ability to distinguish the complexities of HPV vaccination behaviors. Another limitation of our study is that we could not directly quantify the changes observed in HPV vaccination during the pandemic. However, a key strength of our study is that it used a state-representative sample of HCPs and leveraged the unique vantage point of frontline HCPs in determining changes and barriers to HPV vaccination during the pandemic.

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Data Availability

The data related to this manuscript can be obtained, on a reasonable request, from the corresponding author.

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