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# Willingness to Vaccinate Children against Influenza after the Coronavirus Disease 2019 Pandemic

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**Objectives** To determine factors associated with parents who plan to vaccinate their children against influenza next year, especially those who did not vaccinate against influenza last year using a global survey.

**Study design** A survey of caregivers accompanying their children aged 1-19 years old in 17 pediatric emergency departments in 6 countries at the peak of the coronavirus disease 2019 (COVID-19) pandemic. Anonymous online survey included caregiver and child demographic information, vaccination history and future intentions, and concern about the child and caregiver having COVID-19 at the time of emergency department visit.

**Results** Of 2422 surveys, 1314 (54.2%) caregivers stated they plan to vaccinate their child against influenza next year, an increase of 15.8% from the previous year. Of 1459 caregivers who did not vaccinate their children last year, 418 (28.6%) plan to do so next year. Factors predicting willingness to change and vaccinate included child's up-to-date vaccination status (aOR 2.03, 95% CI 1.29-3.32,  $P = .003$ ); caregivers' influenza vaccine history (aOR 3.26, 95% CI 2.41-4.40,  $P < .010$ ), and level of concern their child had COVID-19 (aOR 1.09, 95% CI 1.01-1.17,  $P = .022$ ).

**Conclusions** Changes in risk perception due to COVID-19, and previous vaccination, may serve to influence decision-making among caregivers regarding influenza vaccination in the coming season. To promote influenza vaccination among children, public health programs can leverage this information. (*J Pediatr* 2021;228:87-93).

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Seasonal influenza is a major public health problem, responsible for thousands of deaths every year, including children.<sup>1</sup> Despite the wide availability of seasonal influenza vaccines and clear guidelines for who should be immunized, vaccine uptake remains low in most countries.<sup>2</sup> With the unprecedented coronavirus severe acute respiratory syndrome coronavirus 2 illness, now called coronavirus disease 2019 (COVID-19), which currently lacks a publicly available vaccine, public health authorities worldwide recommended numerous strategies to reduce spread, including reducing physical encounters and wearing masks. These measures have had variable success in curtailing the spread of the virus around the world. Vaccines are likely to provide the best protection from contracting the illness, and there are currently more than 100 projects centered on the development of a vaccine and many have entered clinical trials.<sup>3</sup>

There is a high likelihood that community transmission of COVID-19 will continue into the next influenza epidemic,<sup>4</sup> complicating diagnoses and further increasing the burden on healthcare systems.<sup>5</sup> To mitigate these issues, vacci-

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COVIPAS	International COVID-19 Parental Attitude Study
COVID-19	Coronavirus disease 2019
ED	Emergency department

nating large parts of the population against influenza in late 2020 is a key goal of public health officials.

The objective of this timely survey study was to determine, during the COVID-19 peak pandemic, caregiver intentions toward influenza vaccination of their children, as well as themselves. To better understand how COVID-19 has influenced attitudes toward influenza vaccination, we specifically aimed to describe characteristics of caregivers who intend to immunize their children in 2020-2021 despite the child not receiving influenza immunization in the previous year. Understanding caregivers' attitudes can help public health officials plan targeted messaging to parents to promote influenza vaccination in the upcoming season.

## Methods

### Study Cohort

This study is part of a larger COVID-19 Parental Attitude Study (COVIPAS) study, surveying caregivers of children presenting for emergency care, in the era of COVID-19. Caregivers who arrived to 17 pediatric emergency departments (EDs) in the US (Seattle, Tacoma, Los Angeles, Dallas, Atlanta), Canada (Vancouver, Toronto, Saskatoon, Edmonton, Calgary), Israel (Shamir), Japan (Tokyo), Spain (Barcelona), and Switzerland (Zurich, Bern, Geneva, Bellinzona) were asked to participate, using posters in waiting areas and patient rooms. For infectious control purposes, respondents used their own smartphones to complete the survey by logging into a secured online platform based on REDCap metadata-driven software (Vanderbilt University, Nashville, Tennessee). Several intuitional review boards (in Switzerland and Spain) provided a waiver of consent such that responding to the survey was considered consent to participate.

Languages available to complete the study were English, French, German, Italian, Spanish, Hebrew, and Japanese. Although sites joined recruitment in a staggered fashion, surveys were obtained between March 27 and June 30, 2020. Only one caregiver per family was asked to complete the survey.

For this study, analyses were limited to surveys completed by parents or caregivers, for patients older than 1 year and younger than 19 years of age. Children younger than 1 year were excluded, as these children might not have been eligible to receive influenza vaccine during the previous year. Vaccination against influenza is available for children older than 6 months in all countries that this survey took place.

### Exposures

**Outcome Measures.** The study-specific questionnaire was developed to include questions regarding demographic characteristics, information about the ED visit, and attitudes around COVID-19. Respondents also were asked about their child's vaccination history excluding influenza. Children were considered up-to-date on their vaccinations if the caregiver chose the response: "My child has received all recommended vaccines/immunizations on the schedule suggested by our doctor."

We asked caregivers to answer 4 questions about influenza vaccination separate than the vaccination schedule: (1) "Was your child immunized for influenza (flu) in the last 12 months?" (2) "Have you been immunized for influenza (flu) in the last 12 months?" (3) "Do you plan to immunize your child for influenza (flu) next year?" and (4) "Do you plan to immunize yourself for influenza (flu) next year?"

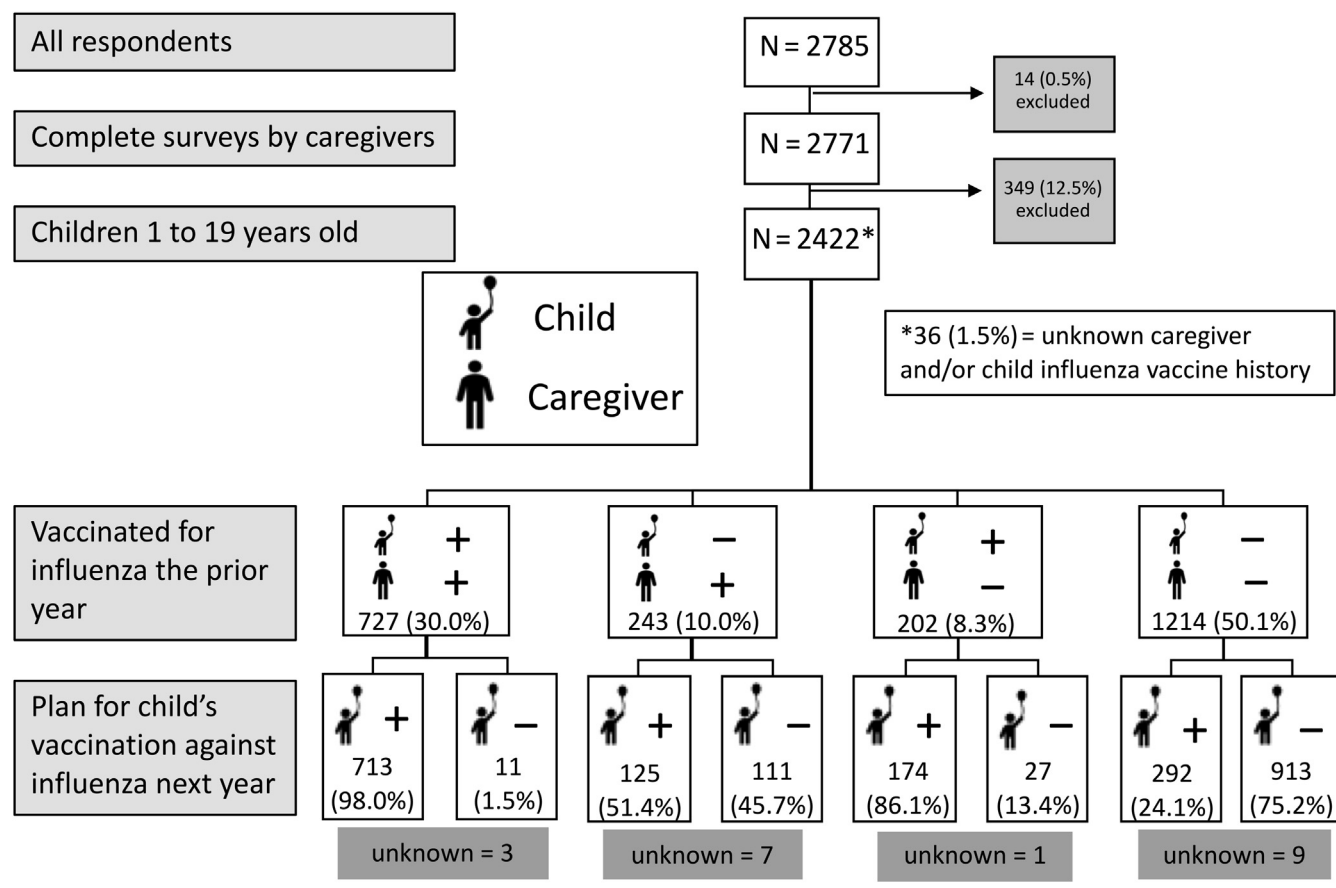
The survey was developed to assess opinions caregivers may have or actions they may take during the pandemic. Literature related to reports from the severe acute respiratory syndrome epidemic in 2002-2003 was reviewed and considerations regarding public health measures in mid-March 2020, during the COVID-19 pandemic were reflected in the survey. All items of the survey, including those presented in this report, were evaluated a priori by 10 individuals representing the target group and 10 healthcare providers working in the ED environment. The final version of the survey is based on the feedback and test clarity generated from these 2 groups.

### Statistical Analyses

Basic descriptive statistics and frequencies were used to describe all variables. We compared survey data from caregivers who stated whether they plan to immunize or not immunize their children against influenza in the coming year. We then compared caregivers who did not immunize for influenza their children last year and compared those that said they do or do not plan to immunize their children for influenza next year. To determine which factors were significantly associated with caregiver decision-making to vaccinate next year despite not doing so last year, we used bivariate analyses: the Mann-Whitney *U* test was used for comparing non-normal continuous variables, independent *t* tests were used for comparing normally-distributed continuous variables, and  $\chi^2$  or Fisher exact tests were used for categorical variables. Multivariable logistic regression was used to estimate the aORs of agreeing to immunize against influenza in the coming year using all the variables that showed a level of  $P < .100$  in the bivariate analyses. All analyses were conducted with R, version 3.5.1 (R Foundation for Statistical Computing, Vienna, Austria). A *P* value less than .05 in the multivariate analysis was considered statistically significant.

## Results

A total of 2785 surveys were completed online. Seven (0.3%) were excluded because the surveys were incomplete, 7 (0.3%) were completed by the patient, 343 (12.3%) were for a patient younger than 1 year of age, 3 (0.1%) for patients older than 19 years old, and 3 (0.1%) with an unspecified patient age (Figure 1). Some participants abstained from answering certain questions, accounting for a small number of unknown responses to each question. The final study sample included 2422 respondents: 2350 parents (97.0%), 67 other caregivers, and 5 respondents who did not specify their relationship to the child. Median age of caregivers was



**Figure 1.** Flowchart of caregivers' decision to plan to vaccinate their children against influenza next year grouped by their decision to vaccinate themselves and their children against influenza last year. Fourteen surveys were excluded for incomplete responses or surveys filled out by children; 349 surveys excluded of children younger than 1 year old ( $n = 343$ ), older than 19 years old ( $n = 3$ ), or did not specify their age ( $n = 3$ ) at time of survey completion. Unknown are children whose vaccination plan was unspecified.

40.0 (SD 7.6) years and median age of the child was 8.3 (SD 4.6) years.

A total of 1314 (54.3%) respondents stated they intend to vaccinate their children against influenza in the coming 12 months, an increase of 15.9% compared with those that reported an influenza vaccine for their child in the past 12 months (Figure 1). As many as 42 of 2422 (1.7%) respondents did not specify their intention to vaccinate their child and 1394 of 2393 (58.3%) respondents stated they planned to obtain the vaccine for themselves next influenza season, compared with 974 (40.6%) in the past year (Table I).

Table I provides demographic information including a comparison between caregivers who plan to vaccinate for influenza in the coming season and those who do not. The greatest likelihood of planning to vaccinate the child next year was if the caregiver planned to vaccinate themselves in the upcoming year (1213/2422; 50.1% of children). Caregivers were more likely to suggest they will immunize next year if they had education beyond high school, if the child had a chronic illness or took medications regularly, if

the child was up-to-date on their vaccines other than influenza according to their country-specific vaccination schedule, or if the child or caregiver received influenza vaccine the previous year.

Of 1459 caregivers who did not vaccinate their children against influenza in the last year, 418 (28.6%) indicated they plan to vaccinate next season, 1025 (70.3%) did not vaccinate last year and will not vaccinate this year, and 16 (1.1%) abstained from answering. Only 38 of 2422 (1.6%) vaccinated their child last year but do not plan to do so next year.

Most caregivers were not concerned about their child having COVID-19 when coming to the EDs in the 6 countries where this survey took place, and we found a significant correlation between level of concern and plan to vaccinate against influenza ( $P = .037$ ; Figure 2 [available at [www.jpeds.com](http://www.jpeds.com)]).

Table II describes characteristics of caregivers who did not vaccinate the child last year but plan to vaccinate their child against influenza in the coming year. Caregivers were more likely to change from non-vaccination last year to

**Table I.** Comparison between caregivers who plan to vaccinate their children and those who do not plan to vaccinate against influenza

Questions caregivers were asked	Number of surveys (n = 2422)	Population	Do not plan to vaccinate against influenza (n = 1066)	Plan to vaccinate against influenza (n = 1314)	P value
Child's mean age, y (SD)	2422	8.6 (4.6)	8.7 (4.3)	8.4 (4.8)	.237
Child's sex female	2418	1163 (48.1%)	515 (48.3%)	629 (47.9%)	.841
Child has chronic illness	2392	360 (15.1%)	105 (9.8%)	250 (19.0%)	<b>&lt;.001</b>
Child uses chronic medication use	2392	440 (18.4%)	136 (12.8%)	298 (22.7%)	<b>&lt;.001</b>
Who completed the survey	2417				.165
Father		605 (25.0%)	285 (26.7%)	308 (23.4%)	
Mother		1745 (72.2%)	751 (70.5%)	966 (73.5%)	
Other*		67 (2.8%)	27 (2.5%)	38 (2.9%)	
Caregiver's age, y (SD)	2383	40.2 (7.6)	40.6 (7.4)	40.0 (7.6)	.056
Caregivers with higher education	2365	1819 (76.9%)	761 (71.4%)	1038 (79.0%)	<b>&lt;.001</b>
Child vaccinations up to date	2729	2188 (91.5%)	920 (86.3%)	1244 (94.7%)	<b>&lt;.001</b>
Child received flu vaccine in last 12 mo	2390	931 (39.0%)	38 (3.6%)	888 (67.6%)	<b>&lt;.001</b>
Caregiver received flu vaccine in last 12 mo	2401	974 (40.6%)	122 (11.4%)	842 (64.1%)	<b>&lt;.001</b>
Caregiver plans on receiving flu vaccine next year	2393	1394 (58.3%)	171 (16.0%)	1213 (92.3%)	<b>&lt;.001</b>
Mean score 10-point Likert scale—caregiver concerned their child has COVID-19 (SD)	2355	1.90 (2.84)	1.79 (2.69)	1.97 (2.93)	.129
Mean score 10-point Likert scale—caregiver concerned their child has influenza (SD)	2331	1.17 (2.31)	1.14 (2.18)	1.17 (2.39)	.761
Mean score 10-point Likert scale—caregiver concerned they have COVID-19 (SD)	2343	1.84 (2.72)	1.78 (2.63)	1.86 (2.77)	.493
Mean score 10-point Likert scale—caregivers concerned they have influenza (SD)	2327	0.90 (1.99)	0.87 (1.84)	0.90 (2.08)	.667
Mean score 10-point Likert scale—caregivers concerned about missing work (SD)	2319	2.71 (3.48)	2.48 (3.35)	2.87 (3.55)	<b>.007</b>
Mean score 10-point Likert scale—caregivers concerned about child missing school (SD)	2328	2.98 (3.52)	2.79 (3.43)	3.10 (3.57)	<b>.037</b>
Caregivers believe that social distancing is worthwhile	2398	2246 (93.7%)	965 (90.5%)	1251 (95.2%)	<b>&lt;.001</b>

\*Other includes grandparents, siblings, stepparents, foster parents, and aunts/uncles. Values in bold are statistically significant.

vaccination in the coming year when they had education more than high-school, they took the vaccine themselves or planning to get vaccinated themselves next year, had a child with an up-to-date vaccination schedule excluding influenza vaccines or were worried their child may have COVID-19 or influenza during the visit in the ED.

In the multivariate logistic regression analysis (Table III), the following factors predicted a willingness to change from not vaccinating the previous year to vaccinating their child next year: children were up-to-date with non-influenza vaccinations (aOR 2.03, 95% CI 1.29-3.32,  $P = .003$ ); caregivers received influenza vaccine last year (aOR 3.26, 95% CI 2.41-4.40,  $P < .010$ ); and caregivers were worried their child had COVID-19 in the ED (aOR 1.09, 95% CI 1.01-1.17,  $P = .022$ ). Unlike the bivariate analysis, caregivers with higher than high-school education were less likely to change from non-vaccination in the previous year to vaccination in the coming year (aOR 0.71, 95% CI 0.52-0.96,  $P = .028$ ).

## Discussion

An annual influenza vaccination is recommended by the Advisory Committee on Immunization Practices for all people 6 months and older who do not have contraindications to vaccination.<sup>2</sup> Although influenza vaccine effectiveness is hard to determine in advance (was 45% in the US in 2019-2020

season),<sup>2</sup> it is overall an effective, minimally invasive, and affordable protective measure against influenza disease and its complications. Reducing influenza illness is important to mitigate morbidity in the population and the burden on hospitals with ongoing COVID-19 illnesses. However, a 2019 survey reported that 6.1% of US parents are hesitant about routine childhood vaccines, and more than one-quarter (26%) are unsure about flu vaccines.<sup>6</sup> Identifying predictors for vaccinating children against influenza in the upcoming season may have greater importance than in previous years.<sup>7</sup>

Behavioral changes related to COVID-19, including social distancing, hand washing, and wearing a mask, will impact influenza spread in the coming year,<sup>3</sup> and it is unclear how relaxation of social distancing measures will influence the spread of influenza. Coinfection of COVID-19 and other respiratory pathogens, including influenza, occurred in a significant subset of patients with COVID-19<sup>8,9</sup> and a case report from China describing coinfection with COVID-19 and influenza A virus represent the difficulty in differentiating other causes of respiratory illness from COVID-19.<sup>10</sup> The Director of the US Centers for Disease Control and Prevention predicted that “we’re going to have a flu epidemic and coronavirus epidemic at the same time” and that the combination of the 2 will be “more difficult and potentially complicated.”<sup>4</sup> Combined influenza and COVID-19 pandemics could result in considerable morbidity and mortality, stressing the health



**Table II. Factors associated with caregivers who did not vaccinate their child against influenza in the past 12 months but who plan to have their child immunized against influenza next year**

Questions caregivers were asked	Non-flu vaccinators who do not plan to vaccinate against influenza (n = 1025)	Non-flu vaccinators who plan to vaccinate against influenza (n = 418)	P value
Child's mean age, y (SD)	8.7 (4.3)	9.2 (4.6)	.091
Child's sex female	492 (48.0%)	192 (45.9%)	.357
Child has chronic illness	100 (9.76%)	50 (12.0%)	.254
Child uses chronic medication	130 (12.7%)	66 (15.8%)	.149
Who completed the survey			.263
Father	274 (26.7%)	102 (24.4%)	
Mother	723 (70.5%)	299 (71.5%)	
Other*	25 (2.4%)	16 (3.8%)	
Caregiver's age, y (SD)	40.7 (7.4)	40.7 (7.6)	.989
Caregivers with higher education	732 (71.4%)	328 (78.5%)	<b>.005</b>
Child vaccinations up to date	885 (86.3%)	393 (94.0%)	<b>&lt;.001</b>
Caregiver received flu vaccine in last 12 mo	111 (10.8%)	125 (29.9%)	<b>&lt;.001</b>
Caregiver plans on receiving flu vaccine next year	166 (16.2%)	389 (93.1%)	<b>&lt;.001</b>
Caregiver would vaccinate their child against COVID-19 if a vaccine existed	492 (48.0%)	337 (80.6%)	<b>&lt;.001</b>
Mean score 10-point Likert scale—caregivers concerned their child has COVID-19 (SD)	1.74 (2.65)	2.18 (3.10)	<b>.012</b>
Mean score 10-point Likert scale—caregivers concerned their child has influenza (SD)	1.13 (2.16)	1.54 (2.71)	<b>.006</b>
Mean score 10-point Likert scale—caregivers concerned they have COVID-19 (SD)	1.76 (2.61)	2.11 (2.95)	<b>.035</b>
Mean score 10-point Likert scale—caregivers concerned they have influenza (SD)	0.85 (1.82)	1.19 (2.37)	<b>.012</b>
Mean score 10-point Likert scale—caregivers concerned about child missing school (SD)	2.75 (3.40)	3.29 (3.66)	<b>.012</b>
Mean score 10-point Likert scale—caregivers concerned about missing work (SD)	2.46 (3.33)	3.17 (3.71)	<b>.001</b>
Caregiver believes social distancing during COVID-19 is worthwhile	929 (90.6%)	395 (94.5%)	<b>.030</b>

\*Other includes grandparents, siblings, stepparents, foster parents, and aunts/uncles. Values in bold are statistically significant.

system,<sup>3,7</sup> and a global interest (as seen through Google trends) in pneumococcal and influenza vaccines during February to March, 2020, has been reported.<sup>11</sup>

In our global survey of primarily parents attending pediatric EDs, a significant shift in parents' plan to vaccinate against influenza in the season following COVID-19 pandemic was noted. A total of 54.3% survey respondents plan to vaccinate for influenza and 29.0% (418/1443) of caregivers who did not vaccinate last year report a change in plan to do so next year, adding to the protection of their children and reducing the chance of transmission to others. We report that caregivers who plan to vaccinate themselves are very likely to vaccinate their children and predictors for caregivers to plan to vaccinate after not doing so last year include children that have

up-to-date vaccinations other than influenza, if the caregiver received influenza vaccine last year, and if they were worried their child had COVID-19.

Seasonal influenza epidemics result in tens of millions of cases, and we have recently reported that caregivers in 14 EDs are likely to provide their children with a COVID-19 vaccine if it becomes available (unpublished data, Goldman et al, 2020). Ensuring influenza vaccine acceptance and uptake in children may also serve public health in promoting COVID-19 vaccines, when those become available.<sup>7</sup>

More than 70 independent barriers are associated with vaccine hesitancy and include psychological barriers (such as perceived risk, utility, and social benefit); contextual barriers (such as access to healthcare services); and lifestyle barriers (such as smoking, drinking, and physical activity).<sup>12</sup> Trust in healthcare providers' advice and mainstream medicine, influence of social network and social norms, knowledge sources about vaccines, and general views toward health are key factors in parental vaccine decision-making.<sup>13</sup> Vaccine risk-perception of parents is often complicated by cognitive bias and personal experience<sup>14</sup> and in our cohort, caregivers were most likely to report plans to vaccinate their children against influenza next year if they plan to vaccinate themselves, meaning they trust the medical system and more specifically put faith in vaccines. Of interest, caregivers put more value and enhance the perceived risks associated with taking action, such as a child having a severe reaction to a vaccine, than the risk of an

**Table III. Predictors of caregivers who didn't vaccinate their child against influenza for their child receive a flu vaccine next year identified by multivariate logistic regression analysis**

Questions caregivers were asked	aOR	95% CI	P value
Child's age	1	0.99-1.00	.205
Caregivers with higher education	0.71	0.52-0.96	<b>.028</b>
Child vaccinations are up to date	2.03	1.29-3.32	<b>.003</b>
Caregivers received flu vaccine last year	3.26	2.41-4.40	<b>&lt;.01</b>
Caregiver's worry that child has COVID-19	1.09	1.01-1.17	<b>.022</b>
Caregiver's worry that they have COVID-19	0.994	0.923-1.07	.863

Values in bold are statistically significant.

omitted action, like the chance of contracting a disease.<sup>15</sup> It is important for primary care providers to highlight the safety and efficacy of the flu vaccines to parents.

Past behavior is a strong factor in vaccinating children and those having been vaccinated in the past against seasonal influenza being more likely to be vaccinated against pandemic influenza.<sup>16</sup> In our study, the influenza vaccination status of a child last year was strongly associated with a caregiver's plan to vaccinate next year ( $P < .001$ ). Similarly, in a study from England, among 1001 parents with one-half their children vaccinated to influenza, vaccine uptake was associated with the child having previously vaccinated against influenza.<sup>17</sup>

Understanding factors that influence a change in influenza vaccine behaviour from year-to-year may guide public health efforts to increase uptake. Fogel and Hicks recently coined the term "flu-floppers," describing patients who received the influenza vaccine in some years but not others. They suggested that many appear to randomly alternate vaccination status from year to year.<sup>18</sup> In a year of COVID-19 pandemic, it is likely that public health worries influence parents to plan on vaccinating their children and only 4% of children vaccinated last year are likely not to be vaccinated next year (38/930 families) compared with 28.6% (417/1460) "flipping" toward vaccinating. Those who stop yearly influenza vaccinations for their children most commonly cited a perceived lack of effectiveness of the vaccine (29%,  $n = 41$ ).<sup>18</sup> Public health officials will need to ensure clear messaging on the safety of influenza vaccines next year, especially in face of COVID-19, to influence parental decision making to convert into vaccinating children.

In a web-based survey of 500 parents from an online panel representative of the US population, the main drivers of parents' decision to vaccinate their child against influenza were prevention of influenza, reduction of influenza symptoms, and doctor recommendation; barriers to vaccination included the risk of adverse effects and the perceived low risk of influenza.<sup>19</sup> Similarly, a review of 64 studies reported an association between vaccination uptake and perceived vaccine safety, general positive attitudes toward vaccination, positive vaccine recommendations, social influences and trust in the healthcare profession, and perceiving fewer practical difficulties with vaccination.<sup>20</sup> We similarly found that caregivers vaccinating their children according to the schedule, and thus likely have trust in the idea of vaccination, are likely to accept the influenza vaccination for their child next year.

Level of caregiver concern that the child had COVID-19 was associated with the change in action towards planning to vaccinate children against influenza. In a systematic review of 37 studies involving the 2009 influenza A virus subtype H1N1 (A/H1N1) pandemic influenza outbreak, the degree of threat experienced and perceptions of vaccination as an effective coping strategy was associated with stronger intentions and greater uptake of vaccination and concern about the disease as well as believing oneself to be at risk to H1N1 influenza were important factors.<sup>16</sup> Fear of the child being sick with COVID-19 is a significant predictor of caregivers changing their mind to start vaccinating next year, which is

supported by the fact that correlations were found between online searches for influenza vaccines and COVID-19, especially in "hotspots" of COVID-19, and increased interest in influenza vaccine compared with similar time periods in non-pandemic years.<sup>11</sup>

Although caregivers with greater than high school education are more likely to vaccinate their children against influenza (79% vs 71.4%,  $P < .01$ ), including those not vaccinating last year (78.5% vs 71.4%,  $P = .005$ ), when other factors were assessed in the multivariate analysis, greater education was associated with lower likelihood of families changing their mind to start vaccinating (OR 0.71, 95% CI 0.52-0.96;  $P = .028$ ). Level of parental education is associated with both high and low uptake of vaccines,<sup>21</sup> likely due to education serving as a surrogate marker for other factors impacting adherence.

Our study has a number of limitations. First, the population of caregivers responding to the survey does not represent all parents in the sites where the study was conducted, as we administered the survey in a pediatric ED setting and only a subset of families (likely <5% of visitors to 17 the pediatric EDs) filled out the survey. We also relied on caregiver possession of a smartphone/tablet/computer to complete the survey online, which may have limited a small percentage of caregivers from responding. Second, we relied on the accuracy of caregiver responses to the status of both influenza and non-influenza vaccinations, because no patient records were checked for confirmation. Finally, as in any survey, caregivers may share their opinions about vaccinations, but act differently once cities are back to a more normal activity, which highlights the importance of public health measures to encourage and ensure adequate vaccination uptake.

In summary, we report propensity of caregivers to vaccinate their children against influenza at a higher rate in the next influenza season, with 29% of those that did not vaccinate last year reporting a plan to do so next year. Caregivers who plan to vaccinate themselves, who received influenza vaccine last year, who were worried their child had COVID-19, and whose children had up-to-date vaccinations other than influenza were associated with plan to vaccinate against influenza. The SAR-CoV-2 pandemic is an opportunity to ramp up influenza vaccination for families previously choosing not to vaccinate. Providers should proactively reach out to offer influenza vaccination, especially to families who have not vaccinated in the past as part of a campaign to increase protection from influenza and mitigate morbidity and mortality during the overlapping influenza epidemic and COVID-19 pandemic. ■

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## Data Statement

Data sharing statement available at [www.jpeds.com](http://www.jpeds.com).

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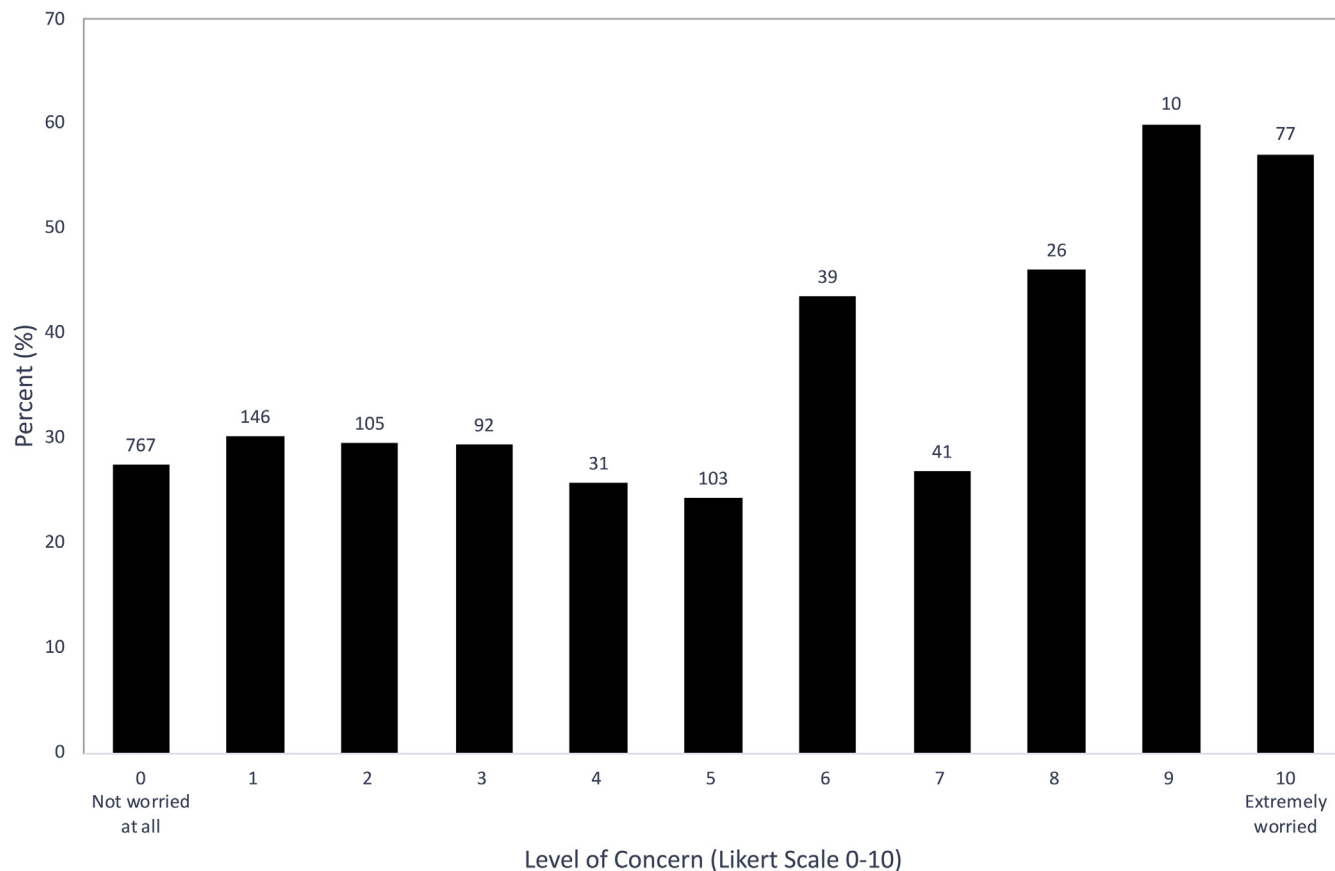
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Percent of parents who did not vaccinate their children against influenza the prior year but plan to do so for level of concern their child had COVID-19 when arriving to the Emergency Department



**Figure 2.** Percent of caregivers who did not vaccinate their child against influenza last year but plan on having their child vaccinated next year by worry that child has COVID-19. Percentages are based on respondents who disclosed their vaccination plan and their level of COVID-19 worry (n = 1437).  $\chi^2$  test used for frequencies;  $\chi^2 = 19.3$ , df = 10,  $P = .037$ .