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Brief Original Report

Influenza vaccination in the 2009–2010 pandemic season: The experience of primary care physicians ☆

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ABSTRACT

Objectives. Determine among a representative sample of pediatricians (Peds), family medicine (FM), and general internal medicine (GIM) physicians in the 2009–2010 influenza season physicians': 1) practices and experiences with delivery of seasonal and pH1N1 influenza vaccines; and 2) anticipated and experienced barriers.

Methods. Two US national surveys administered 7/2009–10/2009 (before pH1N1 distribution) and 3/2010–6/2010 (after pH1N1 distribution) to 416 Peds, 424 FM and 432 GIM.

Results. Of respondents who received both surveys, 62% (776/1253) completed both. Overall, 98% reported administering seasonal influenza vaccine and 86% pH1N1, with 70% reporting that working with public health in delivery of pH1N1 was a positive experience. Due to limited supplies of pH1N1, 63% of providers reported prioritizing who received vaccine even within high risk groups. Pre-distribution, 71% perceived that patient/parental safety concerns about pH1N1 would be a barrier, and post-distribution 72% perceived it had been a barrier. Physician concern about safety decreased, with 44% reporting safety a barrier pre-distribution and 12% post-distribution ($p<0.001$).

Conclusions. In the setting of a pandemic most primary care physicians collaborated with public health in delivery of pH1N1. Physicians faced challenges with patient/parent safety concerns about pH1N1 and supply issues with pH1N1 that required physicians to prioritize who received vaccine.

Introduction

In June 2009, the World Health Organization declared a pandemic due to the spread of a novel strain of influenza (pH1N1) (The Weekly Epidemiological Record, 2009). In addition to the seasonal vaccine, a separate vaccine for pH1N1 was recommended for the 2009–2010 influenza season (MMWR, 2009). Primary care providers had to prepare for the season with uncertainty about when pH1N1 vaccine would be available, how it would be distributed and what patient demand would be. Primary care providers' experiences with delivery of seasonal and pH1N1 vaccines in the 2009–2010 pandemic season have not previously been described but are important to inform preparedness plans for future pandemics. Therefore, the objectives of this study were to assess providers' 1) reported practices and experiences with delivery of seasonal and pH1N1 influenza vaccines; and 2) reported anticipated and experienced barriers in delivery of both vaccines.

Methods

From August to October 2009, and April to June 2010, two surveys were administered in physician survey networks representative of the American Academy of Family Physicians (AAFP), American College of Physicians

Abbreviations: pH1N1 vaccine, 2009 Influenza A (H1N1) monovalent vaccine); CI, Confidence Interval; wks, weeks; mos, months; yrs, years; TIV, trivalent influenza vaccine; Peds, Pediatricians; FM, Family Medicine physicians; GIM, General Internal Medicine physicians; AAP, American Academy of Pediatrics; AAFP, American Academy of Family Physicians; ACP, American College of Physicians; CDC, Centers for Disease Control and Prevention.

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(ACP), and American Academy of Pediatrics (AAP) memberships (Crane et al., 2008). The human subjects review board at the University of Colorado Denver approved this study.

Questions in the survey before vaccine distribution assessed anticipated barriers to administration of pH1N1 and seasonal influenza vaccines. The survey after vaccine distribution examined administration practices, perceived barriers, supply/demand of both vaccines, and perceived illness related to pH1N1. All reported results are based on the population that responded to both surveys. The surveys were pilot tested in a national sample of primary care physicians and were administered via mail or Internet (Vovici, Dulles VA) using a tailored approach (Dillman et al., 2009). Detailed methods and the survey questions are included in an online appendix.

Kolmogorov–Smirnov (KS) tests were used in comparisons of overall distributions of responses to Likert scales. Barriers were compared between the two surveys using McNemar's test. Specialties were combined for reporting of results as most results were similar, with significant differences between specialties noted. Analyses were performed using SAS 9.2 (Cary, North Carolina).

Results

Of the 1,253 physicians who received both surveys, 776 (62%) completed both (Peds 68%, FM 58%, and GIM 60%). Characteristics of respondents are shown in an online appendix.

Among respondents, 98% reported administering seasonal influenza vaccine and 86% reported administering pH1N1 vaccine in their offices during the 2009–2010 season. Seventy percent of physicians agreed that working with the public health department in the delivery of pH1N1 vaccine was a positive experience. Most physicians reported that demand was higher in the 2009–2010 season for both influenza vaccines than is typical, and that they did not have a sufficient supply of pH1N1 vaccine when demand was highest (Table 1). Ninety-eight percent of physicians reported that media coverage had a major influence on patient demand for pH1N1 vaccine. Fig. 1 shows physicians' perceptions of supply of and demand for both vaccines plotted with their perceptions of actual illness related to pandemic H1N1 influenza. The highest percentage of physicians reported that both illness and demand for pH1N1 vaccine peaked in October 2009, when less than 30% of physicians reported having an adequate vaccine supply. In contrast, physicians reported that supplies for seasonal influenza vaccine were adequate when demand was highest. The majority of physicians reported having an adequate supply of both vaccines from December 2009, through March 2010, a period of perceived diminishing demand.

When supplies were limited, 19% of physicians agreed that they distributed pH1N1 on a "first come, first served" basis. Sixty-four percent reported they were forced to prioritize among high risk groups who would receive pH1N1 vaccine due to limited supplies (Table 1). Fifty-six percent reported having to cancel at least one previously scheduled vaccination clinic due to delays in the supply of pH1N1 vaccine.

With one exception, for all potential barriers analyzed, most physicians were more likely to report barriers as moderate or significant on the pre-distribution survey than they were on the post-distribution survey (Table 2). Pre-distribution, 71% of physicians anticipated parent or patient concerns about vaccine safety would be a moderate or significant barrier, and 72% of physicians reported that they perceived it was a barrier post-distribution. In contrast, 44% of physicians reported their own concerns about safety were a moderate or significant barrier pre-distribution, while 12% reported this concern post-distribution.

Detailed results by physician specialty are available in an online appendix.

Table 1
US primary care physicians' experiences with influenza vaccination in the 2009–2010 pandemic season, survey administered 3/2010–6/2010.

	% H1N1	Seasonal Influenza
Perceived demand for and patient/parental attitudes regarding H1N1 and seasonal influenza vaccine (n = 730).		
Demand was higher among adults for vaccine this year compared to usual demand[a].		
Strongly agree	29	23
Somewhat agree	37	42
Somewhat disagree	28	31
Strongly disagree	7	3
For children, demand was higher for vaccine this year compared to usual demand[b].		
Strongly agree	45	16
Somewhat agree	35	45
Somewhat disagree	17	36
Strongly disagree	3	4
Patients or parents were more concerned about safety of vaccine this year compared to usual concerns.		
Strongly agree	56*	5
Somewhat agree	37	11
Somewhat disagree	6	56
Strongly disagree	1	28
Experience with the delivery of H1N1 and seasonal flu vaccine (n = 725)		
When supplies of vaccine were limited, my office distributed vaccine on a "first come, first serve" basis, rather than prioritizing by high risk condition.		
Strongly agree	8	17
Somewhat agree	11	24
Somewhat disagree	22	26
Strongly disagree	59	33
Even among the group of patients considered "high risk", I was forced to prioritize who received the vaccine due to limited vaccine supplies.		
Strongly agree	29	16
Somewhat agree	35	30
Somewhat disagree	22	30
Strongly disagree	15	24
When demand for vaccine was highest, I had insufficient vaccine to meet demand.		
Strongly agree	51	28
Somewhat agree	25	26
Somewhat disagree	13	23
Strongly disagree	11	23

*$p<0.05$ by Kolmogorov–Smirnov test for comparison of distributions of responses between specialties. Compared to FM and GIM, more Peds strongly agreed with the statement and fewer somewhat agreed or disagreed.
[a] GIM and FM only.
[b] Peds and FM only.

Discussion

This study is the first to present primary care physicians' reported experiences during the 2009–2010 pH1N1 pandemic, confirming prior reports on safety concerns and presenting new information on the effects of limited vaccine supply during periods of high demand. Participation in delivery of pH1N1 vaccine was high, and most physicians reported that patient illness from pandemic H1N1 influenza and demand for pH1N1 vaccine preceded adequate supplies of the vaccine. As a result, most physicians were forced to cancel scheduled immunization clinics and prioritize which patients should receive vaccine even within groups of high risk patients. Fewer barriers to seasonal and pH1N1 vaccination were reported after vaccine distribution than before with the exception of parental or patient concerns about pH1N1, which was a significant barrier.

The mismatch between supply and demand during the 2009–2010 influenza season was notable. Physicians perceived that demand was higher for pH1N1 vaccine than is typical in a usual influenza season, apparently fueled by intense media attention, but demand waned quickly for both seasonal and pH1N1 vaccines. Although delays or interruptions in influenza vaccine supply are not unusual (O'Leary et al., 2011; Orenstein and Schaffner, 2008; Rodewald et al., 2006), because of the timing of the pandemic and the requirement for two separate influenza vaccines these delays and interruptions were especially apparent during the 2009–2010 influenza season. Although physicians reported having to cancel clinics due to supply issues with both seasonal and pH1N1 vaccines, they were able to meet demand for seasonal vaccine but not for pH1N1 vaccine.