



Brief Report

Despite awareness of recommendations, why do health care workers not immunize pregnant women?



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Studies indicate uncertainty surrounding vaccination safety and efficacy for pregnant women, causing a central problem for health authorities. In this study, approximately 26% of participants do not recommend the tetanus, diphtheria, and acellular pertussis and influenza vaccines to their patients, although being aware of the health ministry recommendations. We found significant statistical discrepancies between the knowledge about the recommendations and their actual implementation, revealing the concerns of health care workers regarding vaccine safety.

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Immunization experts consider vaccination of pregnant women a new and efficient way of preventing newborn and infant infection and improving neonatal outcomes.^{1,2} Presently, only 2 vaccines are specifically recommended during pregnancy: influenza and tetanus, diphtheria, and acellular pertussis (Tdap).^{2,3} However, a central problem facing health authorities is the limited safety and effectiveness data and guidelines regarding vaccination of pregnant women, which cause theoretical concerns about fetal risk. Therefore, currently licensed vaccines are categorized as B (animal reproduction studies have failed to demonstrate a risk to the fetus and there are no adequate and well-controlled studies in pregnant women) or C (animal reproduction studies have shown an adverse effect on the fetus and there are no adequate and well-controlled studies in humans, but potential benefits may warrant use of the drug in pregnant women despite potential risks).⁴ As a result, the implementation of maternal vaccination programs has been poor or modest in many countries.^{1,3} Vaccination coverage of 42.8% for influenza and 39.2% for pertussis was ob-

served in Belgium,⁵ with 49.4% and 51%, respectively, in the United States.⁶ In light of these modest vaccination rates, the objective of our study was to assess health care workers' knowledge and views on communicating recommendations to pregnant women to immunize against Tdap and influenza. Risk communication for patients regarding vaccinations is an important tool for promoting trust and compliance, and for raising concerns and referring to uncertainty.⁷⁻⁹ Health care workers are the main mediators between the public and implementation of health organizations' recommendations. Although there is vast literature on health care workers and immunization, few efforts have been made to assess the views of health care workers regarding conveying recommendations for pregnant women to immunize against Tdap and influenza.

METHODS

The research sample included attending or resident physicians at obstetrics and gynecology departments and family physicians from 6 different hospitals in Israel and Master of Public Health students who work in the medical system.

A questionnaire was used to evaluate knowledge about influenza and Tdap vaccines during pregnancy, and implementation of routine delivery of these vaccines to pregnant women (Appendix 1). The questionnaire was developed based on the research goals of examining knowledge of doctors versus actual behavior. It was also based on concepts from risk communication to examine

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reliability, personal experience, and trust. We conducted a pilot of the questionnaire on a group of 10 doctors, and we corrected the wording accordingly.

The study was based on a quantitative multistage sampling of physicians and attending physicians in obstetrics and gynecology and family medicine. The physician population was stratified geographically: Northern and Central Israel by data from Haifa, a major northern city, and Tel-Aviv, a major city in the center, respectively. Questionnaires were distributed to all physicians and attending physicians present at their department morning meeting. Each session included between 13 and 25 physicians, depending on the department size. Among the doctors present (1%-3% of physicians could not join the meeting), most participated and answered the questionnaire. Additionally, there are currently 21 medical centers in Israel with obstetrics and gynecology departments, and 5 of them are major medical centers. For our sampling we picked 3 of them: Rambam Hospital, Sheba Medical Center, and Tel-Aviv Sourasky Medical Center. We also added 3 smaller hospitals, 2 in the North and 1 in the Tel-Aviv suburbs. We chose this combination of hospitals to include a wide range of physicians and attending physicians with different profiles so our sample would be a representative group of the population of physicians. A series of bivariate analyses and Fisher exact test were used to determine the difference between the knowledge regarding the influenza and Tdap vaccines guidelines and practices, and participants' perceptions and between their perceptions and implementation. Open questions were analyzed according to inductive content analysis. All the statistical analyses were conducted using SAS (version 9.1; SAS Institute, Cary, NC). Two-sided *P* values <.05 were considered statistically significant.

The research was approved by the University of Haifa Faculty of Social Welfare & Health Sciences Ethics Committee for Human Research (approval no. 140/15).

RESULTS

The study included 150 health care practitioners who participated in a face-to-face interview. The average age was 41 years, and 56.8% of the respondents were women, and 43.2% were men. Of the participants, 78.7% were Jewish, and 21.3% were Arab. There were 35.7% that worked both in hospital and the community (33.0% in hospital and 31.3% in community only), with 54.0% who were gynecologists, 20.7% who were Master of Public Health students, and 25.3% who were family practitioners (Table 1).

The findings indicate that 92.5% and 93.1% of the participants know that the health ministry recommends Tdap and influenza vaccines during pregnancy, respectively. However, only 68.1% implement

the recommendations for the Tdap vaccine, and 70% implement the recommendations for the flu vaccine. Of the participants, 65.3% would recommend the Tdap vaccine and 68.7% would recommend the influenza vaccine to their daughters or wives during pregnancy. More than 63% reported that the Tdap and influenza vaccines are safe during pregnancy, and about a third reported that both vaccines are dangerous or controversial (Table 2).

Significant discrepancies were found between knowledge about recommendations for Tdap and influenza vaccinations during pregnancy and actual implementation. More than 26% know the recommendations, but do not recommend it to their patients. Furthermore, approximately 40% believe both vaccinations are dangerous, but still recommend them to their patients, whereas 60% do not implement the recommendation. Out of the demographic characteristics of the participants who knew the recommendations but did not recommend, only professional background was dominant because family practitioners were more likely not to recommend the Tdap and influenza vaccines (46% and 36%, respectively) compared with gynecologists (15.7% and 18.7%, respectively).

The questionnaire's open questions support the results of the aforementioned quantitative analysis offered. Among physicians who stated that they do not recommend the influenza and Tdap vaccines to their pregnant patients, the most pervasive argument regarded vaccine safety and efficacy. The participants argued that there was insufficient information and uncertainty about the efficacy and safety of the vaccine (influenza and pertussis) and of vaccines in general during pregnancy. Regarding the influenza vaccine, an additional argument was that influenza is not a dangerous disease and the risk for pregnant women from the disease is not higher than in the general population.

Among health care practitioners who stated they do recommend the influenza and Tdap vaccines to their pregnant patients, the most common explanation was that the vaccine was important, however, with no substantial explanation to back the claim. In addition, they argue that these are the recommendations of the health ministry. Another prevalent argument was that the illness (influenza and pertussis) is more dangerous during pregnancy and could endanger the pregnant woman and the fetus. For the Tdap vaccine, an additional argument was that the vaccine could protect the newborn after birth.

DISCUSSION

This study reveals that despite the health care workers' knowledge of the health ministry's recommendations, some of them do not recommend the Tdap and influenza vaccines to their pregnant patients overall, and would not recommend them for their own daughters and wives if they were pregnant. Even though health care workers are a professional public, studies show that like the general public, they are often reluctant to vaccinate,^{10,11} have concerns about side effects, have concerns about the novelty of the vaccination, a lack of faith in its efficacy, and have concerns in the severity of the disease.^{12,13}

On the other hand, we found that approximately 40% of the health care workers who recommend the Tdap and influenza vaccinations to their patients believe that they are not safe. This may be an expression of their trust in the health ministry, which is greater than their personal concerns regarding the vaccination.

The results of our study are supported by studies^{5,14} indicating that some pregnant women did not vaccinate because vaccination was not recommended by health care workers, and those who did recommend them did not provide them. In addition, although the health care workers were aware of the recommendation to vaccinate pregnant women, they were concerned about vaccine safety and its efficacy in pregnant women.¹⁴ Regarding limitations, the sample of health care workers in this study was relatively small. In addition, using a cross-sectional sampling, it precludes causality and

Table 1
Descriptive statistic for the study population (N = 150)

Characteristic		Frequency (n)	%
Age	Mean ± SD (range)	41.1 ± 10.4 (22-67)	
Sex	Male	64	43.2
	Female	84	56.8
	Missing	2	
Ethnicity	Jewish	114	78.7
	Arab	33	21.3
	Missing	3	
Workplace	Hospital	38	33.0
	Community	36	31.3
	Both	41	35.7
	Missing	43	
Years of experience	Mean ± SD (range)	11.6 ± 9.9 (0-51)	
Expertise	MPH students	31	20.7
	Gynecologists	81	54.0
	Family practitioner	38	25.3

MPH, Master of Public Health.

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