Assessment of Obstetric Providers' Practice Surrounding Vaccine Counseling and Administration for Non-Birthing Partners

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ABSTRACT

INTRODUCTION: Society guidelines recommend caregivers of neonates, including both co-parents, be up to date on Tdap, COVID-19, and influenza vaccines before delivery to prevent primary transmission of vaccine-preventable diseases to the infant. However, only one third of reproductive-age individuals are up to date on recommended vaccinations. Pregnant individuals often receive recommended vaccines during prenatal care, but limited research has investigated if prenatal care can also provide opportunities to increase vaccination rates among non-birthing partners/co-parents.

METHODS: We administered an anonymous survey to outpatient prenatal care providers, including Obstetricians, Family Medicine physicians, Certified Nurse Midwives, and Nurse Practitioners, to assess practice patterns and opinions regarding vaccine counseling and in-office vaccination for the non-birthing partners of pregnant patients.

RESULTS: Of the 200 obstetric providers surveyed, 112 responded (56%). Of these, 42% (n=77) reported counseling non-birthing partners on vaccine recommendations less than half the time. Only 4% (n=4) of respondents report vaccinating non-birthing partners who are not already patients in their practice. Nearly half of providers who do not offer non-birthing partner vaccination had never considered the practice (46%, n=44). The majority of respondents desired more education on non-birthing partner vaccination (58%, n=55). Respondents identified multiple implementation barriers to vaccinating non-birthing partners, including difficulties with registration, staffing, and time constraints. If barriers were addressed, 68% (n=65) of providers expressed willingness to incorporate non-birthing partner vaccination into their practice.

CONCLUSIONS: This study demonstrates willingness of key stakeholders to incorporate non-birthing partner vaccination into prenatal care, a unique mechanism to increase parental vaccination rates and protect neonates from vaccine-preventable illness.

INTRODUCTION

Vaccinations are a critical part of health maintenance and are the mainstay for decreasing infection-related morbidity and mortality for infants, children, and adults.[1] The benefits of maternal vaccination during pregnancy are well known,[2-8] as vaccines offer protection for the pregnant individual as well as passive immunity for the neonate. However, most infants remain inadequately protected from maternal vaccination alone, making them susceptible to vaccine-preventable illness. Many neonatal infections can be traced to direct exposure from a parent.[9-11] Therefore, the Centers for Disease Control and Prevention (CDC), the American College of Obstetricians and Gynecologists (ACOG), and the American Academy of Pediatrics (AAP) recommend all infant caregivers ensure that they are up to date with recommended vaccines, including tetanus, diphtheria, and pertussis (Tdap), COVID-19, and influenza at least two weeks prior to birth of the newborn.[12-15]

Reproductive-aged individuals aged 18–49 years old have the lowest documented vaccination rates in the United States for Tdap (32%), influenza (38%), and COVID-19 (22.3%).[16-19] Furthermore, there are significant racial and ethnic disparities in vaccination uptake, with individuals who identify as Black or Hispanic and those with lower socioeconomic status having the lowest rates of vaccination.[20,21] The reason for the low rates of vaccination uptake in this age group may be due in part to the fact that 50% of reproductive-age individuals do not seek preventative healthcare.[22] Thus, efforts aimed at increasing vaccination during primary care visits are not sufficient to lead to an increase in vaccination rates in this demographic. To address deficits in vaccination compliance, organizations, including the CDC, the Institute of Medicine, and Community Preventative Services Task Force, have called for innovative programs to incorporate young adult vaccination into clinical practice and minimize encounters during which eligible individuals fail to get vaccinated (so called "missed opportunities").[3,17]

The field of obstetrics has demonstrated success in increasing vaccination rates in pregnant patients through counseling and in-office maternal vaccination during prenatal care.[2,3,5] Prior literature has demonstrated that 64–90% of non-birthing partners (i.e., co-parent, hereafter referred to as "partner") interact with obstetric providers while accompanying their pregnant partner to at least one of their prenatal

visits, ultrasounds, delivery, or postpartum hospital stays.[23] Therefore, prenatal care represents a prime opportunity for vaccination engagement for both pregnant individuals and their partners. Specifically, prenatal visits may provide a setting for vaccine education as well as point of care for administration of vaccines for partners who may not otherwise interact with healthcare professionals.[4,24]

Despite society recommendations for counseling on caregiver vaccination, there are few studies regarding vaccinations of non-birthing partners during prenatal care.[24] To address this deficit in the literature, we surveyed obstetric providers on their current practice patterns for vaccine counseling and in-office vaccine administration for non-birthing partners. We hypothesized that the majority of obstetric providers will provide counseling on vaccine recommendations, but will not routinely provide in-office vaccination opportunities for non-birthing partners due to administrative burden.

METHODS

Study Sample

To assess obstetric providers' vaccine counseling and administration practices for pregnant patients and non-birthing partners, we designed the survey with the input of vaccine (EH) and survey design (MAC) experts and pilot-tested the survey in our target population. We administered the final cross-sectional, anonymous electronic survey to a diverse sample of 200 providers who identified as Obstetricians, Family Medicine physicians, Certified Nurse Midwives (CNMs), or Nurse Practitioners (NPs) and who provide outpatient prenatal care in the state of Rhode Island. This sample was derived from a list of active prenatal care providers in the state whose practices admit to one of the five maternity hospitals (four community hospitals and one academic center). The anonymous electronic Qualtrics survey was distributed via hyperlink and QR code to an email listserv of providers. The survey was open from November 2023 through March 2024. This survey was deemed to be exempt by the Women & Infants Hospital of Rhode Island Institutional Review Board (IRB #2052960).

Measures

The electronic link provided a description of the study, a consent form, and the screening questions, "*Do you provide prenatal care to pregnant patients in an outpatient office or clinic?*" and, "*What is your current role?*" to ensure participants identified as the target population of outpatient prenatal care physicians or advanced provider practitioner (i.e., CNM or NP). Consenting, eligible participants were directed to the complete the questionnaire [**Supplementary document available upon request**]. The initial series of multiple choice questions assessed current practice patterns surrounding vaccination. Items were designed to assess how often providers discussed vaccine recommendations with pregnant patients and non-birthing partners using a Likert scale ranging from "Never" to "Always". Non-birthing partners for the purposes of this study were specifically described as "co-parent, spouse, significant other and/or domestic partner of [respondent's] pregnant patient." To assess current vaccination administration practices, providers were asked to whom (i.e., non-pregnant patients, pregnant patients, and/or non-birthing partners) and which specific vaccines they administered within their office or clinic to determine general vaccine availability within practices.

Respondents were then queried to identify the perceived degree of impact specific factors had on administration of vaccines to non-birthing partners. Factors addressed were modified from prior studies assessing barriers to in-office vaccination for pregnant patients in obstetrics and gynecology offices.[25] These factors included administrative burdens, cost, staffing, time, and discomfort in vaccinating a non-patient. Additionally, providers were asked whether they had previously considered vaccinating partners and whether this lack of consideration was a factor in their current practice patterns. The perceived degree of impact of each factor was assessed using a four-point Likert scale of "major factor", "moderate factor", "minor factor", and "not a factor".

Participants who were not currently providing in-office partner vaccination were then asked, "*Is offering vaccination to partners of pregnant patients something you would be interested in offering/incorporating into your practice if the barriers you previously identified were addressed?*" to assess their willingness to incorporate non-birthing partners vaccination into their routine practice. To assess the desirability of educational opportunities and resources regarding vaccination recommendations, providers were asked, "*Would you be interested in receiving more information about formal educational opportunities and resources regarding vaccination recommendations for partners of pregnant patients?*" Participants were asked if they had received at least one vaccine to protect against COVID-19 as a proxy of general vaccine acceptance. Finally, demographic and practice information were solicited to provide context for interpretation of results.

Statistical analysis

Tables for descriptive statistics were generated to explore the distribution of the survey results among participants using IBM SPSS Statistics (Version 27). Given the nature of the survey questions, no responses were considered outliers. Survey responses were also analyzed by provider role (i.e., obstetrician/MFM, Family Medicine physician, or advanced practice provider [i.e., CNM/NP]) to assess for difference in practice patterns based on provider background.

Table 1. Demographics of Provider Participants

	N (%)
All	**111**
Provider type	
Obstetrician	54 (48.6)
Maternal-Fetal Medicine Physician	10 (9.0)
Family Medicine Physician	27 (24.3)
Nurse Practitioner	2 (1.8)
Certified Nurse Midwife	18 (16.2)
Practice type*	
Academic Medical Center	39 (41.5)
Community based clinic	32 (43.0)
Community based hospital	14 (14.9)
Large health system (e.g. Kaiser)	5 (5.3)
Private Practice	23 (24.6)
Total number of providers in office	
1	2 (2.1)
2–5	10 (10.8)
6–10	28 (30.1)
11+	54 (58.1)
Prenatal visits per week	
1–25	51 (55.4)
26–50	30 (32.6)
51–75	8 (8.7)
76+	3 (3.3)
Years in practice	
<1	1 (1)
1–5	35 (37.2)
6–10	19 (20.2)
11–20	16 (17.0)
>20	21 (22.3)
Received ≥ 1 COVID-19 Vaccine	
Yes	93 (98.9)

*Options for practice type were not mutually exclusive; Percentages were calculated based on number of responses received for each question. Some percentages do not add up to 100% due to rounding and/or participant preference to not answer.

Figure 1. Frequency of vaccine counseling for pregnant patients and non-birthing partners.

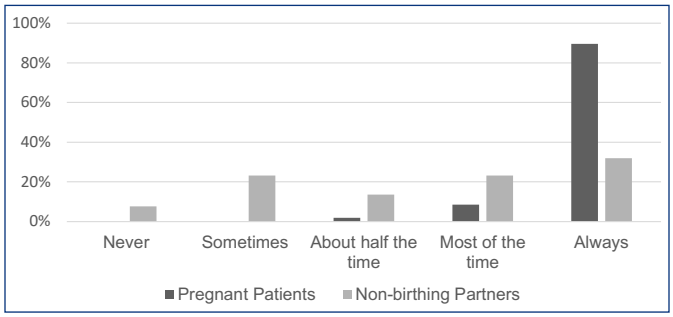
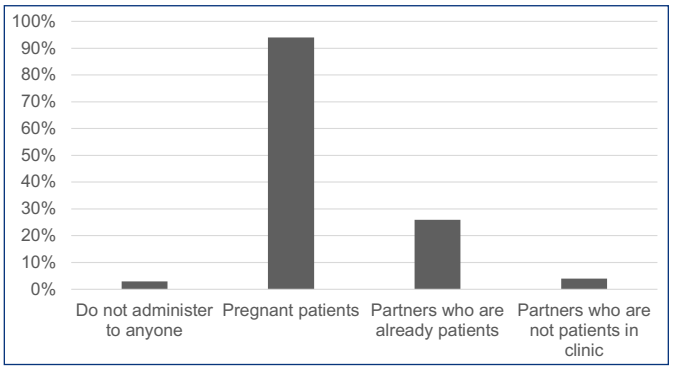


Figure 2. In-office vaccine administration by type of recipient. Survey respondents indicated all categories of vaccine recipients to whom they currently provide in-office vaccinations. Partners were dichotomized as those who were already registered as patients and those who were not already registered as patients in the respondent's practice.



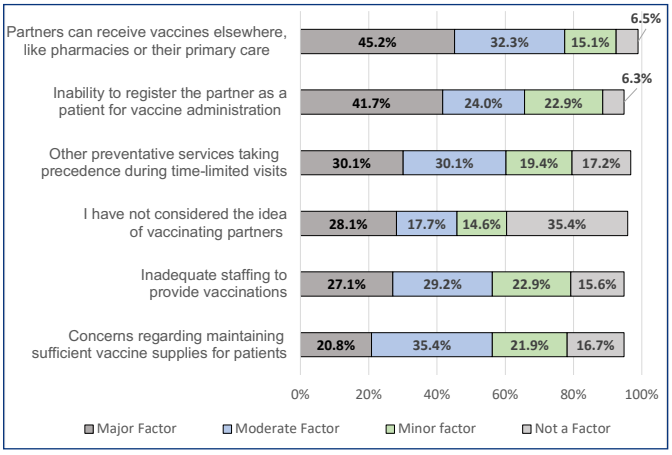
RESULTS

Of the 200 prenatal care providers contacted, 112 (56%) consented and 111 initiated the survey (55.5%). Of these, 97 (87%) completed the entirety of the survey, with the remaining 14 answering all but the last five demographic questions. The majority of respondents were Obstetricians (45.9%) or Family Medicine Physicians (24.3%) who had practiced for 10 to 20 years (74%), in an academic center (41.5%) or community-based clinic (34.0%), and were part of a clinic or office with 11+ providers (58.1%) [**Table 1**]. The majority of respondents saw 1–25 prenatal visits per week (55.4%). Almost all (98.9%) of providers had received at least one vaccine to protect against COVID-19.

When asked how often the respondents explicitly discuss the recommendation for at least one vaccination for non-birthing partners, only 55.3% reported doing so "most of the time" or "always". In contrast, 98.1% of providers reported that they "most of the time" or "always" discuss at least one recommended vaccination for the pregnant patient [**Figure 1**]. The majority of participants (93.1%) reported vaccinating pregnant patients in the office to Tdap (97.7%), influenza (96.5%), and COVID-19 (51.2%). In contrast, only 3.9% (n=4) of respondents vaccinate non-birthing partners who are not already registered as a patient in the office or clinic [**Figure 2**]. Among the four respondents who confirmed vaccination of partners who were not already patients, three out of four were family medicine providers and only one was an obstetrician [**Supplementary tables available on request**].

When asked about factors preventing in-office partner vaccination, the most frequently identified major or moderate factors were, "Partners can receive vaccines elsewhere, like pharmacies or their primary care physicians" (77.4%), "inability to register the partner as a patient for vaccine administration" (65.6%), "other preventative services taking precedence during time-limited visits" (60.2%), "inadequate staffing to provide vaccinations" (56.3%), and "concerns regarding maintaining sufficient vaccine supplies for patients" (56.3%) [**Figure 3**]. Importantly, 45.8% of respondents identified, "I have never considered the idea of vaccinating partners" as a major or moderate factor.

Figure 3. Barriers to in-office administration of vaccines to non-birthing partners. (Some percentages do not add up to 100% due to rounding and preference to not answer.)



The majority of obstetric providers (75.8%) indicated an interest in incorporating vaccination of non-birthing partners into prenatal care if barriers were addressed, compared to only 26.8% who responded "maybe" and 8.2% who responded negatively. The majority of participants (57.9%) reported a desire to receive additional education regarding vaccine recommendations for partners with an additional 23.3% indicating they may be interested. Only 21% (N=20) of providers expressed no interest in further education.

DISCUSSION

This study describes obstetric providers' practice patterns surrounding vaccination of pregnant and non-birthing partners. We found that while obstetric providers consistently provide counseling and vaccination to pregnant individuals, they only provide counseling on recommended vaccinations for partners approximately half the time and rarely provide in-office vaccine administration to partners. Barriers to vaccinating non-birthing partners include both logistical factors such as limited time at visits and difficulty registering partners, as well as attitudinal barriers such as providers believing that partners can receive their vaccines elsewhere or having never considered providing partner vaccination. Importantly, the majority of obstetric providers would be willing to incorporate non-birthing partner vaccination into their practice if identified barriers are assessed. These results suggest prenatal care providers support the incorporation of non-birthing partner vaccination into routine prenatal care, while demonstrating needs to both further efforts to educate obstetric providers on partner vaccination and to address barriers to implementation into routine prenatal practice.

Meghani et al demonstrated that 83% of providers recommended COVID-19 vaccination to pregnant patients,[26] and O'Leary et al found that >90% of obstetric providers provide in-office vaccination to Tdap and influenza to pregnant patients,[25] similar to rates for vaccine counseling of pregnant individuals reported in our study. O'Leary et al also noted that while financial barriers hindered some vaccination, there were also rare reports of attitudinal barriers (i.e., opinions against pregnant patient vaccination) in their study. Regarding obstetric providers' practice regarding partners vaccination, our study not only identified financial factors that inhibited partner vaccination efforts, but also found significant attitudinal barriers (i.e., opinions that partners can receive vaccines elsewhere) as common barriers impeding the implementation of partner vaccination during prenatal care.

Our study demonstrates that nearly half of obstetric providers do not counsel on recommendations for partner vaccination, a missed opportunity to improve vaccination rates in this population. Since vaccine education by a trusted provider is critical to vaccine uptake,[27-30] efforts to increase provider knowledge and vaccination counseling practices is likely critical to increasing vaccine uptake for partners. Furthermore, decreasing barriers to vaccine access for non-birthing partners though vaccination during prenatal care visits has the potential to increase immunization rates for partners. In one prospective acceptability study, Steiner et al demonstrated that in their cohort, 61% of partners who were eligible for Tdap vaccination accepted vaccination in the prenatal office.[24] Increasing partner vaccination will decrease infection risk for the individuals themselves, their pregnant partner, and their neonates while filling a broader public health need by increasing herd immunity and protecting communities as a whole.

In order to incorporate new programs into clinical practice, acceptability, feasibility and efficacy must first be demonstrated.[31,32] To determine acceptability, the necessary stakeholders must be willing to participate. For partner vaccination during obstetric care, both providers and the partners themselves must be amenable. This study provides evidence of acceptability from provider's perspective. However, while preliminary studies have demonstrated partners willingness to be vaccinated,[24,33] the current needs and the desirability of a prenatal vaccine program needs to be more thoroughly explored with a diverse population of non-birthing partners.

While this study highlights new data showing that the majority of providers are interested in considering incorporation of a partner vaccination program within prenatal clinics, it raises many important implementation questions. Specifically, obstetric providers identified both educational and administrative factors that need to be addressed. It is also important to note that 45.8% of providers ranked "I have never considered the idea of vaccinating partners" as a major or moderate barrier in prior vaccination of partners. This highlights that educational initiatives are needed for providers regarding partner vaccination as a first step to incorporation of vaccination of partners into clinical practice.

Our study has many strengths. Our response rate of 56%, with 87% of respondents completing the survey in full – is consistent with recent studies on healthcare provider survey response rates.[34] Furthermore, we surveyed multiple different types of obstetric providers (physicians, CNMs, NPs) with various medical specialty backgrounds (Obstetrics, Maternal-Fetal Medicine, and Family Medicine) in both community and academic settings, allowing our results to be generally applicable to a wide variety of prenatal care providers in different practice settings. Our study also identified gaps in provider counseling and education regarding vaccination as well as barriers to vaccination that will assist with future studies aimed at prenatal partner vaccination to optimize effectiveness of future work.

Nevertheless, our study is not without limitations. First, while the survey was designed with input from vaccine and survey design experts and pilot tested within the target population, the survey has not been externally validated. Secondly, all survey data were anonymized. Though this is considered best practice to promote honest responses from participants on sensitive topics,[35-39] obtaining anonymous data prevented us from contacting individuals to obtain more information about their responses and limits our ability to collect data on non-respondents. Third, although our response rate was to the questions regarding vaccine practices was 56%, 14 out of 111 individuals who participated (14%) did not complete the final five demographic questions indicating potential participant fatigue. These providers were similar in provider type to the whole cohort, as this information was collected upfront during eligibility screening. Nevertheless, efforts to reduce this fatigue and succinctly gather the necessary information must be considered for future iterations of this survey. Lastly, this study focused on Rhode Island obstetric providers and may not reflect attitudes or experiences from providers in other states. A larger nationwide survey is needed to demonstrate different practice patterns nationally.

CONCLUSIONS

This study demonstrates that although non-birthing partner vaccination counseling is not a routine part of a prenatal care for a large portion of surveyed prenatal care providers, there is significant interest in both education and incorporation of non-birthing partner vaccination into prenatal care. Further studies are needed to assess the feasibility and effectiveness of partner vaccination in prenatal clinics.

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