Title: Effects of COVID-19 Pandemic on Maternal Influenza and Tdap Vaccination Rates

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Background: Pregnant and postpartum women are known to have a higher risk for severe illness from influenza and COVID-19 as compared to non-pregnant women[1,2]. The American College of Obstetricians and Gynecologists (ACOG) and the Society for Maternal Fetal Medicine (SMFM) recommend COVID and influenza vaccination during pregnancy, in the postpartum period, and for breastfeeding mothers[1,3,8]. As of September 2021, the CDC sites that, nationwide, only 31% of pregnant women are fully vaccinated against COVID-19[6]. Additionally, the CDC sites that in 2020-2021, only 54% and 53% of pregnant women obtained the influenza and Tdap vaccines, respectively[7].

Objective/Purpose: The purpose of this study was to assess Tdap and influenza vaccination rates prior to the COVID vaccine offering (2020) and after in 2022 for impact on vaccination rates.

Methods: Anonymous surveys were administered to pregnant patients who received their prenatal care at UF Health Jacksonville. The first set of surveys were distributed in 2019-2020 (pre-COVID pandemic) and the second set in 2022 (during and after the pandemic). Patients were advised that their medical record number would be saved so we could assess vaccination rates in the study group. The surveys included whether vaccination was discussed with their provider, perceptions about the COVID, Tdap, and influenza vaccines and remained anonymous. We compared vaccination rates from the initial pre-COVID group to the later post-COVID group.

Results:
Table 1. Vaccination Rates Before and After COVID Pandemic.

	Pre-COVID pandemic (n= 66)	Post-COVID pandemic (n = 24)	% difference χ^2
COVID vaccinated	n/a	12.5% (3/24)	n/a
Tdap vaccinated	56% (37/66)	42% (10/24)	14% $\chi^2 = 3.5$
Influenza vaccinated	39% (26/67)	12.5% (3/24)	26.5% $\chi^2 = 18$

A Chi-squared analysis was performed, as the data was categorical with the degree of freedom being 1. There was a 14% difference in Tdap vaccination rates pre- and post-pandemic, with a χ^2 value of 3.5. There was a 26.5% difference in influenza vaccination rates with a χ^2 value of 18. Given these χ^2 values, the null hypothesis can be rejected, that is to say: while this study

was limited by sample size, the data shows that the difference in vaccination rates pre-and post-pandemic are not random.

From a qualitative perspective, the anonymous surveys were reviewed, and the most commonly cited reasons for COVID-19 vaccine hesitancy among our patient questionaries were: fear of side effects, lack of information, and inadequate testing of the vaccine.

Conclusion:

The COVID-19 pandemic had far-reaching impact on patient compliance with primary and preventative care as well as perceptions about vaccinations and, on a broader scale, perceptions about medical recommendations. The purpose of this study was to assess if the COVID pandemic itself and the discussions about vaccination, made any significant impact on pregnant mother's decisions to accept the recommended Tdap and influenza vaccines. While the sample size was a limitation of our study, our data showed that Tdap vaccination rates fell by about 14% after the pandemic and influenza vaccination rates fell by about 26.5% after the pandemic. Interestingly, survey responses showed that the primary factors in patient hesitancy regarding the COVID vaccine were fear of side effects, lack of information, and inadequate testing –none of which should presumably be applicable to the Tdap and influenza vaccines given their long history of use, safety, and efficacy during pregnancy. Additionally, on average, patient reported high levels of agreement in questions regarding the importance of other vaccines. Despite this, the maelstrom of influences amidst the pandemic seemed to have negatively impacted our patient's willingness to accept recommended vaccines during pregnancy.

References:

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