OPEN LETTER

Global equity in protection of pregnant frontline workers

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Abstract

Vaccination of frontline workers against COVID-19 is underway in some countries. With women comprising a majority of health, education, and other essential workforces, many on the front lines of the pandemic response will be pregnant at the time that they are offered COVID-19 vaccines. However, pregnant people were not included in any of the COVID-19 vaccine trials that regulatory agencies evaluated when considering authorization. Without pregnancy-specific data, pregnant frontline workers in some settings are being denied COVID-19 vaccines. In other settings, pregnant frontline workers are able to access these same vaccines, but are faced with the burden of decision-making in the absence of an explicit recommendation for use and without pregnancy-specific data. While permissive recommendations for use in pregnancy are ethically preferable to unjustly denying vaccine access, objectives to protect the frontline workforce will fall short until there is evidence to support explicit recommendations for COVID-19 vaccination in pregnancy. In this article, we provide three actionable recommendations to ensure equitable protection of pregnant frontline workers as vaccines against COVID-19 continue to be developed and rolled out globally. First, efforts must be taken now to leverage critical opportunities for narrowing the evidence gaps around currently authorized COVID-19 vaccines in pregnancy. Next, action in the near term is needed to preempt evidence gaps for COVID-19 vaccines still in development. Finally, in the absence of an explicit recommendation for use in pregnancy, and while pregnancy-specific data lags behind, pregnant people should be prioritized for alternate preventive and treatment measures. Achieving equitable protection for those who are pregnant...
and serving on the frontlines of the pandemic will require no less.

**Keywords**
COVID-19, Vaccines, Pregnancy, Essential workers, Frontline workers

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Introduction

At any given time, around 200 million people in the world are pregnant, and many of them serve on the pandemic frontlines. Highly effective COVID-19 vaccines are currently being offered to frontline health workers and other prioritized groups in some settings. Globally, women comprise 70% of the health workforce, and are heavily represented in other frontline occupations, most notably education. However, faced with limited pregnancy-specific data, various national public health agencies have responded differently to the use of COVID-19 vaccines in pregnancy. For example, in the United States (US) and Canada, pregnant people are eligible to receive COVID-19 vaccines, but in other countries, including Chile and Singapore, pregnant people are being denied access to these same vaccine products. This problematic disjunct in policy is the result of a lack of expediency in gathering pregnancy-specific data for COVID-19 vaccines.

As additional countries evaluate their policy on pregnancy and newly authorized vaccines, we present three actionable recommendations to achieve equitable protection of pregnant frontline workers. First, for the COVID-19 vaccines already authorized, additional evidence must be collected and analyzed as soon as possible. This evidence must be sufficient to support an explicitly positive or negative recommendation for use in pregnancy, rather than a permissive policy or blanket exclusion. Such evidence can also support efforts to harmonize conflicting international recommendations. Second, for COVID-19 vaccines still in development, investments must be made now to reduce the lag time between authorization for the general public and recommendations for use in pregnancy. Third, pregnant frontline workers who are denied access to COVID-19 vaccines, or who decline vaccination due to a lack of pregnancy-specific evidence, should be prioritized for alternate protective measures and, if necessary, therapeutic interventions.

Recommendations

1. Ensure evidence for explicit recommendation around authorized COVID-19 vaccine use in pregnancy

Regulatory and public health authorities considered the Pfizer/BioNTech, Moderna, Janssen, and AstraZeneca vaccines in pregnancy under conditions of significant empirical uncertainty. In some cases, not even pre-clinical data from developmental and reproductive toxicology studies were available at time of regulatory evaluation. Decision-making groups had to take a position based largely on scientific judgments about the biological plausibility of risks of these vaccines to pregnant people and their offspring, the risks of COVID-19 infection in pregnancy, and the remarkable efficacy of these vaccines for prevention of any COVID-19 disease, severe disease, and death. Pregnancy is a risk factor for severe COVID-19, with data from the US suggesting that pregnant people are three times more likely to require intensive care and 70% more likely to die when compared with non-pregnant peers. Based on experience with other vaccines, currently authorized COVID-19 vaccines are expected to be as efficacious in pregnant people as in other adults.

Because of the significant risks of infection and serious COVID-19 disease that some pregnant frontline workers face, the permissive position taken by the US and Canada is ethically preferable. But permissive recommendations for use of these vaccines in pregnancy are ultimately insufficient. Leaving decision-making to pregnant frontline workers in consultation with their individual providers without an explicit positive recommendation puts many pregnant frontline workers in a potentially difficult position. They now shoulder the burden of having to navigate complex, technical, and most critically, limited evidence. Shifting the locus of decision-making to pregnant frontline workers increases the likelihood that decisions might suffer from bias by well-established risk distortions around interventions in pregnancy. At a minimum, when pregnant frontline workers are offered vaccine, they should also be provided curated up-to-date information about the specific vaccine in pregnancy and where possible, an opportunity to discuss the decision with an obstetrical provider. As many country policies also relegate decision-making about vaccination to the clinical-context, ensuring broad provider education about the risks and benefits of COVID-19 vaccines in pregnancy will be paramount to ensure equitable access.

As vaccine eligibility expands, there will be many more pregnant people who will soon be faced with the dilemma of evaluating risks and benefits for themselves and their developing fetus. And as vaccines becomes available to the general population, the unfair burden on individual pregnant people making this decision will exponentially expand. There is an opportunity to minimize the unfairness to pregnant people, if action is taken in the near term. All pregnant people who choose to be vaccinated should be able to enroll in well-designed pregnancy registries or prospective observational studies. Thus far only Pfizer BioNTech has begun enrollment in a pregnancy-specific randomized control trial. As more such studies are designed, conversations between sponsors, regulators, advisory committees, and public health authorities should determine the specific evidence that would be required for an explicit recommendation for use in pregnancy.

2. Avoid delays in pregnancy-specific data for COVID-19 vaccines currently in development

Efforts to collect prospective observational data on pregnant workers vaccinated in countries where vaccines are being offered in pregnancy will provide valuable information for vaccination of other pregnant populations, but this data will only pertain to the specific vaccine products deployed. Other COVID-19 vaccine products brought to market may have different safety and efficacy profiles that bear on their suitability for use in pregnancy, in part dependent on the platform they use. Among the COVID-19 vaccine candidates currently in Phase 3 trials, a wide range of different platforms are represented, including viral vector platforms, inactivated virus platforms, and protein subunit platforms. Given different levels of experience with each of these platforms in pregnancy, the data needed to support an explicit recommendation around use in pregnancy may vary between platforms.
Where completed DART studies are needed, results should be provided at time of request for emergency authorization. When requesting emergency authorization, investigators and sponsors should also supply any data from incident pregnancies among trial participants and a timetable for providing the results of studies underway or planned with pregnant people. For all vaccines in development, plans should be solidified now that specify what preclinical and clinical pregnancy-specific data should be collected, and when, to narrow and ideally close the gap between the time of request for emergency use authorization in adults and when a recommendation for use in pregnant people can be provided. These plans should be developed in discussions between regulatory authorities, relevant advisory bodies, technical experts, policymakers, vaccine developers, and sponsors and should be communicated to the public.

Because evidence that pregnancy is a risk factor for severe COVID-19 disease comes primarily from HIC\textsuperscript{12–16}, regulatory bodies in LMIC face an additional challenge. Additional vaccine data on the safety and efficacy in pregnancy will likely strengthen regulators’ positions in low-resource settings to make timely and clear recommendations on the vaccine use in pregnancy and avoid unfair delays or denials of vaccine access to pregnant frontline workers in these contexts.

3. Prioritize pregnant frontline workers who are denied or who decline COVID-19 vaccines for alternative protection

A decision, such as the one taken by public health authorities in Chile and Singapore, to exclude pregnant people from accessing COVID-19 vaccines offered to their non-pregnant co-workers does not relieve policy makers of ethical obligations to pregnant essential workers. A no-vaccine policy for pregnant workers should not mean a no-protection policy. Additionally, because the evidence to support COVID-19 vaccination in pregnancy is less complete than for the general population, pregnant frontline workers should be allowed to decline vaccination and be afforded priority protection.

Especially in times of high demand for health and other essential services, employers will need to think creatively about how to balance three potentially competing priorities: accommodating pregnant workers’ needs and desires to work and continue receiving compensation, ensuring capacity to care for surges in demand, and mitigating risk to their pregnant workers. Wherever possible, pregnant workers who are not vaccinated should be offered the opportunity to transfer to low-risk settings or roles. Unvaccinated pregnant workers who cannot be reassigned to low-risk settings or roles should be permitted to take leave when institutionally feasible without jeopardizing employment security and, if possible, with pay. Parental leave policies should remain unaffected. Additionally, unvaccinated pregnant frontline workers should be prioritized for preferential access to personal protective equipment or treatments that may be rationed due to short supply.

**Conclusion**

Crafting ethically acceptable policies for protecting pregnant frontline workers as COVID-19 vaccines are rolled out globally is a complex, dynamic, and context-dependent process. Because of the medical and ethical complexities of assessing risk and prospect for benefit across the trimesters of pregnancy, it is imperative that this determination be guided by experts in maternal-fetal medicine, pediatrics, and obstetrics who are knowledgeable about infectious disease and vaccinology, as well experts in bioethics and pregnant workers or their representatives. These experts and stakeholders deliberating together will be best positioned to guide decision-makers in finding an ethically acceptable policy option.

Pregnant workers face compounded risks from occupational exposure and heightened risk from infection in pregnancy. They are also simultaneously disadvantaged by the current failure to focus on pregnancy in evidence generation for both COVID-19 vaccines and therapeutics\textsuperscript{17,18}. It is critical that the COVID-19 research and development enterprise work to fill the evidence gap that is so detrimental to pregnant people and their offspring, as a matter of health equity and public health. Until there is evidence to support explicit recommendations for COVID-19 vaccination in pregnancy, objectives to protect the frontline workforce will fall short.

**Data availability**

No data is associated with this work.

**References**


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