

## EDITORIAL

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# Vaccination against COVID-19 in Peruvian pregnant women

## La vacunación contra el COVID-19 en gestantes peruanas

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The SARS-CoV-2 pandemic has been a unique, sad, and painful experience for the entire world. At the same time, we have also witnessed how the generation of new knowledge and rapid learning based on scientific evidence, together with adequate communication to the population, have supported the criteria that should continue to mark the course of decisions to be taken at all levels, from the diagnosis and management of patients to Public Health decisions, in order to mitigate and adequately control its impact on the health and living conditions of the population.

Since March 2020, when the World Health Organization (WHO) declared the SARS-CoV-2 pandemic, it was established that the risk in pregnant women was higher, partly explained by physiological changes during that period<sup>(1)</sup>. Several studies have found that women diagnosed with COVID-19 are at increased risk of preeclampsia/eclampsia (relative risk [RR]: 1.76; 95% CI: 1.27-2.43), severe infections (RR: 3.38; 95% CI: 1.63-7.01), and admission to intensive care units (RR: 5.04; 95% CI: 3.13-8.10). Likewise, other research reveals that preterm delivery has an increased risk (RR: 1.97; 95%CI: 1.56-2.51), severe maternal morbidity (RR: 2.66; 95%CI: 1.69-4.18), and severe perinatal morbidity and mortality rate are higher (RR: 2.14; 95%CI: 1.66-2.75)<sup>(2-10)</sup>.

Based on what is currently known, it can be concluded that pregnant women diagnosed with COVID-19 have an increased risk of presenting pregnancy complications, such as preeclampsia, eclampsia, HELLP syndrome, as well as preterm delivery and newborns with low birth weight, compared to pregnant women without COVID-19. This situation is of interest not only for the short term, but also for the future since it is a risk condition for chronic diseases<sup>(3)</sup>.

From the beginning, together with other institutions, both the Sociedad Peruana de Obstetricia y Ginecología (SPOG) and the United Nations Population Fund (UNFPA) called attention to the urgency of including pregnant women in vaccination schedules, sharing and analyzing the available information<sup>(4)</sup>, as well as the potential costs of omission. But, above all, based on the daily experience in health services, where pregnant women arrived in advanced stages of disease. Thus, as soon as studies on vaccination in pregnant women showed encouraging results of safety and efficacy, and vaccines became available, its application in pregnant women began. It should be recalled that, at the end of the first semester 2021, when vaccination of pregnant women was started, after vaccinating the first-line personnel, the vaccines were administered by age groups from 50 years old onwards and to the vulnerable population. Thus, on Saturday, June 12, vaccination of pregnant women began, first among those who were more than 28 weeks pregnant, but without



considering postpartum and nursing mothers. With the arrival of more vaccines, three months later, the gestational age range was lowered, starting at 12 weeks<sup>(5)</sup>.

However, the picture is even broader. Two years after the SARS-CoV-2 pandemic was declared, the increase in maternal mortality in Peru has been one of its most painful impacts, to the point in having registered two-thirds more maternal deaths in 2021 than in 2019 (493 vs. 302), when the lowest number in our history had been registered<sup>(6)</sup>.

If we express these values as a maternal mortality ratio, it would represent an increase of approximately 60 to 100 maternal deaths per 100,000 live births in just two years. In addition, we must keep in mind that mortality is not the only effect of the pandemic; morbidity, including its extreme forms, has also been affected.

According to specialists from the Ministry of Health (MINSA, for its acronym in Spanish), weekly maternal deaths in the first semester of 2021 would have represented almost three times the number registered in the second semester of the same year, going from around twenty to seven deaths per week. If we analyze the causes, we will notice that if in 2020 one out of six maternal deaths (16%) was caused by COVID-19, which is an indirect cause, in the first semester of 2021 it had already increased to 40%, to then decrease to 9% during the second semester. That, accumulated annually, represented 30%, being the first cause in the year<sup>(7)</sup>. Additionally, we must consider that during the same period, excess mortality, not only due to causes associated with pregnancy, childbirth or puerperium, but also due to all other causes, showed similar downward trends, on a par with those caused by the pandemic itself<sup>(8)</sup>.

As for direct causes, such as hemorrhage or pregnancy-induced hypertension, although they remained in similar proportions in 2020 and 2021 (one in five or six, in each case) similar to previous years<sup>(9)</sup>, they also increased in absolute numbers, as the number of deaths registered in those years was higher.

Although the efforts of the sector and its personnel to rapidly expand vaccination have been so meritorious, it is not easy to quantify precisely what the direct attributable impact would have

been on the reduction of maternal mortality, since the underreporting of vaccination among pregnant women is, in turn, a fact that is difficult to pinpoint. At the end of 2021, it was not possible to distinguish how many women had been vaccinated according to their age group, without having been registered as pregnant or who did not know they were pregnant at the time of vaccination. What is certain is that there has been a very significant decrease in maternal deaths due to COVID-19 in the second semester of 2021, with the deaths occurring in unvaccinated pregnant women.

On the other hand, we should not omit the inequalities between the number of doses applied according to age, sex, departments, provinces, districts, etc. In the case of pregnant women, the monitoring of coverage, facilitated by their visibility in the reports, has not been the same so far during the vaccination period. This is not only due to the new design of the Single National Repository for Health Information (REUNIS, for its acronym in Spanish) portal, which no longer reports the specific vaccination of pregnant women<sup>(10)</sup>, suggesting that they are no longer being considered together with other risk groups, but also due to the challenges involved in monitoring them. In part, this decision could be explained by the fact that many women have already been vaccinated because of their age, not because they are pregnant. Also, because they were vaccinated before they became pregnant, or because those who were vaccinated did not necessarily declare this condition, assuming they knew about it.

Monitoring in the first six months of vaccination in relation to registered births (which ideally should be to mothers with the complete vaccination schedule) suggests that coverage in pregnant women was lower than in the rest of the population. In this case, in addition to other potential sources of underreporting, and regardless of the reduction in maternal mortality (and not knowing the reports of extreme maternal morbidity), it seems that maternal health is not being prioritized, a necessary condition to reverse the catastrophic situation generated by the pandemic. A necessary first step is to make more accessible the information generated by the administrative records of the services, as well as those of the epidemiological surveillance of extreme maternal morbidity.



The analysis of the available information also shows that in the group of women aged 18-49 years (pregnant or not), after the peak reached in September-October 2021, the daily, weekly, and monthly average continues to decrease. Is a maximum of vaccination of pregnant women already being reached? It is therefore of interest to consider that several studies show that the levels of misinformation, doubts and rejection among pregnant women are significant, and are not the same as those of the rest of the population. Therefore, information campaigns specifically aimed at answering their doubts are necessary, starting with the health personnel themselves<sup>(11)</sup>, who have some doubtful attitude about their innocuousness, despite the evidence showing that vaccines are safe and effective<sup>(12-15)</sup>.

Yet another aspect to consider in the vaccination of pregnant women and given that we encourage the prioritization of maternal health, is that we cannot ignore that also other vaccines in the regular schedule show a notable delay in their goals, already before the pandemic<sup>(13)</sup>. Using the nominal pattern administered by MINSA, in 2018 diphtheria and tetanus vaccine coverage was slightly above 50%, falling to 29.3% by 2019, to 12.4% in 2020 and 11.8% in 2021. Long-term trends in the Demographic and Family Health Surveys (ENDES, for its acronym in English) also serve as a reference. For the application of tetanus toxoid in pregnant women, in the last births in the five years prior to the survey shows the following evolution: in 2000, 58.6% had received at least two doses, a level that was slightly lower in 2010 (56%), reaching 55.6% in 2019. And while the 2020 estimate does not fully capture the effect of the first year of the pandemic, the decline is already 31.7%<sup>(14)</sup>.

Therefore, there is an urgent need for greater visibility of the information recorded, as well as the need not to lower our guard in the vaccination against SARS-CoV-2, without ignoring the lags in the other vaccines. Activity that, having also been affected by the pandemic, its recovery is urgent as an expression of the prioritization that maternal health must have. Even more so when we are halfway along the path of the Sustainable Development Goals (SDGs) to 2030, which in the case of Peru has established as a goal to reduce maternal mortality to one third of the level recorded in 2021<sup>(15)</sup>.

Undoubtedly, vaccination continues to play a very important role, but this great goal implies an even more titanic task, which involves a national commitment to make the reduction of maternal mortality a true national priority.

Lima, March 20, 2022

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