



VIEWS AND REVIEWS

Covid-19: The time to shield all pregnant frontline workers is now

Recent outbreaks of influenza, Ebola, and Zika viruses have taught us that pregnant women are uniquely vulnerable to emerging infectious threats. Let's not fail pregnant frontline workers during the covid-19 pandemic, say **Elizabeth B Brickley** and **Enny S Paixão**

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Last month the Royal College of Obstetricians and Gynaecologists introduced new guidance¹ on covid-19 and occupational health, asserting that for pregnant healthcare workers after 28 weeks' gestation and those with underlying health conditions "a more precautionary approach is advised. Women in this category should be recommended to stay at home." This precautionary approach should be extended to all pregnant workers on the frontline of the covid-19 response, including those in non-medical roles.

To accommodate and protect the developing fetus, pregnancy exerts new pressures on a woman's respiratory and cardiovascular systems and induces profound changes to her immune system. Pregnant women are at increased risk during gestation of developing hypertension and diabetes, both newly recognised risk factors for severe covid-19.² Compared with their non-pregnant peers, pregnant women may also have markedly altered immune responses when they encounter new infectious agents like the novel severe acute respiratory syndrome coronavirus (SARS-CoV-2) that causes covid-19.

Few pregnant women have had confirmed cases of covid-19 to date, and the evidence base on the consequences of SARS-CoV-2 infection in pregnancy³ is scant. Vital comparisons of the clinical course of covid-19⁴ between pregnant and non-pregnant women of child bearing age are, unfortunately, lacking. Vertical transmission remains an open question. The relative risks of adverse pregnancy outcomes, including miscarriages, intrauterine growth restrictions, stillbirths, congenital anomalies, and preterm births, between SARS-CoV-2 infected and uninfected pregnant women are also unknown.

Looking back to recent emerging infectious disease outbreaks, we have good reasons to be concerned about pregnant frontline professionals.

Past outbreaks teach us that pregnant women may be at heightened risk of severe complications from respiratory infections. In 2009, a pandemic strain of influenza A (H1N1) emerged and rapidly spread across the globe. When researchers

collated 120 studies investigating the risks of influenza A (H1N1)pdm09 in pregnancy,⁵ they concluded that infections were associated with higher risks of hospitalisation, intensive care admission, and death. Further evidence, from both the 2009⁶ and 1918⁷ pandemics, indicates that infection with influenza during the first trimester is associated with increased risks of fetal loss. Analogous reports of severe pregnancy complications and fetal demise can also be found in the more limited literature on the coronaviruses that caused epidemics of SARS⁸ and MERS.⁹

Past outbreaks also show us that, despite facing disproportionately high risks, pregnant women may be systematically excluded from trials of potentially lifesaving vaccines and therapeutics. Consider, for example, the 2013-16 Ebola outbreak in Guinea, Liberia, and Sierra Leone. Observational reports dating back to 1976¹⁰ suggest that Ebola and pregnancy may be a deadly combination: over 80% of infected pregnant women die and virtually all lose their pregnancies. Nevertheless, when investigators examined the clinical trials of vaccines and drugs "proposed, initiated, or conducted" during the recent Ebola virus outbreak in west Africa, they found that all 14 trials failed to include pregnant women.¹¹ Much hope is currently pinned on the development of a vaccine for SARS-CoV-2, but it remains uncertain to what extent such a vaccine would benefit pregnant women.

Finally, past outbreaks illustrate the devastating costs of delays in protecting pregnant women. The 2015-17 Zika virus outbreak and the ensuing epidemic of children born with microcephaly and other congenital birth defects provide perhaps the most striking example of the potential dangers of failing to shield pregnant women from emerging viral threats.

After the cluster of microcephaly was first recognised in north east Brazil, epidemiologists swiftly made the causal connection to the seemingly benign Zika virus¹² and recognised the elevated risks of infection during the first trimester.¹³ For many women, the evidence came too late. Although there are currently no reports of birth defects associated with SARS-CoV-2, case

reports by Dong et al¹⁴ and Zeng et al¹⁵ of three neonates born with elevated IgM antibodies to the virus have raised new concerns of the possibility of congenital infection.

The covid-19 pandemic has only been unfolding for five months, and the full impact of SARS-CoV-2 infections during pregnancy is yet to be seen. Nevertheless, the lack of evidence is not a reason to wait before we act. Pregnancy is a unique, but fleeting, season of many women's lives. In this unprecedented public health crisis, we can afford to offer pregnant workers in essential public service roles the opportunity to step back temporarily from their frontline professional duties. Failing to adopt protective measures now could place pregnant women and their offspring at unnecessary risk.

Government officials around the world should act today to shield all pregnant frontline workers from exposure to covid-19. We need to respect pregnant women's autonomy to choose whether to continue working during the pandemic. We should provide pregnant workers in conventionally public facing roles with alternative means to contribute, such as through teleworking opportunities. When that is not possible, we must ensure pregnant workers, regardless of gestational stage, have the option of a viable temporary off-ramp from professional duties, comprising an early paid maternity leave with stable healthcare coverage, and a clear path to career re-entry.

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