

## **Pregnancy and Sars-Cov-2: A Novel Virus in a Unique Population**

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We have much to learn about the impact of Covid-19 on pregnancy and on our maternity services. Prospective national and international research is crucial. So far, we understand that maternal outcomes in women infected with Sars-2-Cov in pregnancy are relatively reassuring, but focus must be maintained on the inherent risks of childbirth. Health Care Workers (HCW) on the front line are at risk of infection and must be protected. The need for modern maternity facilities is accentuated.

This is a rapidly evolving story. On 31<sup>st</sup> December 2019, an outbreak of pneumonia was notified to WHO China and within a week, novel Sars-Cov-2 was identified as the cause.<sup>1</sup> By the 11<sup>th</sup> of March WHO declared the outbreak to be a pandemic, amidst rapidly rising infection and mortality rates across the world.

Writing on 31.03.2020, over 787,000 cases had been confirmed globally with over 37,840 deaths reported. In Ireland, there had been over 2,900 confirmed cases of Sars-2-Cov and 54 associated deaths with a higher proportion of deaths in men. One in four confirmed infections and one death occurred in HCW. There have been no maternal deaths attributed to Covid-19.<sup>2</sup> In contrast to mortality rates in the elderly and those with underlying medical disorders, there is a notable absence of reported maternal deaths attributed to Covid-19 and a very small number of case reports describing ventilation in pregnant and postpartum women.<sup>3</sup> Equally neonatal outcomes reported to date have been reassuring.<sup>4</sup>

The dearth of peer reviewed data on pregnancy, delivery and neonatal outcome is striking with a preponderance of small case series and isolated case reports. In the limited data available, pregnant women who are healthy and who do not have an underlying illness have not been shown to be at greater risk of being infected with the virus or of developing a severe infection.<sup>5</sup> Clinical characteristics of Covid-19 pneumonia are similar to those reported for age matched non pregnant adult patients.<sup>6</sup>

Two articles published in JAMA on 26<sup>th</sup> March present evidence on three neonates who may have been infected with SARS-CoV-2 in utero from mothers with Covid-19 disease. The evidence was based on neonatal IgM levels and not virologic evidence. The authors conclude that more evidence is required and to date vertical transmission would appear to be possible but rare. In this series, neonatal outcomes were favourable.<sup>7,8,9</sup> Breast feeding is not contraindicated in babies born to infected women although women are advised to wear protective equipment and wash their hands before caring for the baby.<sup>10</sup> There is an absence of data on miscarriage in Covid-19.<sup>3</sup> An increase in preterm birth and caesarean section rates have been described in small series.<sup>3,6</sup> Some of these cases were medically indicated preterm birth to facilitate maternal care in the context of severe infection. At present, there is no contraindication to vaginal delivery.<sup>10</sup> Rates of intrapartum fetal distress may be increased when women with infection labour and continuous EFM is recommended.<sup>9</sup> There is an absence of data on fetal growth but previous experience with other infections would suggest that fetal growth monitoring is advisable.<sup>3</sup> With little data on outcomes in women infected in early pregnancy, a number of international fertility<sup>12</sup> bodies have given guidance to fertility specialists to delay treatments that would result in pregnancy. These are precautionary measures and there is no current evidence to recommend avoidance of spontaneous conception<sup>13</sup> although some couples may choose to defer pregnancy at this time. Women with underlying health problems may particularly consider deferring pregnancy, while older women may chose not to delay becoming pregnant.

In a recent study from NYC reporting on a series of seven women infected with Covid-19, five were afebrile on initial screen and four women did not report a cough and therefore did not qualify for testing.<sup>13</sup> Asymptomatic disease and low grade symptoms are well described in Covid-19.<sup>14</sup> In the relatively young cohort of pregnant patients who may have absent or low grade symptoms, it is difficult to predict infection and infected patients may not qualify for testing. More research is required to determine if pregnant women have a different presentation profile and whether pregnancy alters disease course in Covid-19, when corrected for age and gender. In this context, guidelines for testing should be continuously reviewed as our knowledge and experience increases.

Breslin et al point out, HCW in the maternity sector cannot practice physical distancing with patients and have long periods of interaction with patients throughout labour and delivery with the additional risk of unpredictable emergencies and urgent time sensitive operative delivery. Multidisciplinary teams are required increasing inter HCW infection risk. Staff distancing within a hospital environment is key but can be difficult to achieve. HCW also travel to and from busy work environments and may live in clusters increasing community acquired infection opportunity.

Potential infection or requirement for isolation in HCW is a major risk for maternity units, particularly in the maternity and neonatal units of level three hospitals in Ireland where there are small numbers of highly skilled staff. Despite the Call Back Ireland Initiative, it is not easy to source such skilled staff at short notice when every hospital in the country is seeking to build contingency for the anticipated surge of cases and associated exposure risk for HCW. Every effort must be made to protect HCW on the frontline healthcare services. Appropriate prompt testing capacity must be provided for staff so that infected HCW are isolated, contact tracing facilitated and unnecessary absence avoided. Advice on PPE for healthcare workers may be customised to the maternity sector, whilst acknowledging the primary importance of hand hygiene. Stock and risk of PPE fatigue is a consideration.

Huge effort has been made in each of the units to prepare for Covid-19. Recently HIQA issued a report highlighting the significant infrastructural deficits in maternity hospitals in Ireland. Impressively rapid structural preparations for Covid-19 at NMH, have accentuated these challenges and serve as a salutary reminder of the clinical imperative of progressing the relocation of NMH to a modern custom built facility on SVUH campus.

Fear of infection, physical distancing and restrictions on partners attending the hospitals make this an extraordinarily difficult time for pregnant women. Strong public health measures to combat viral transmission are an additional burden. The next weeks for Ireland will be incredibly difficult as our intensive cares units and hospitals are stretched to and beyond their limits. Nonetheless, there is huge cause for hope. The majority of women who contract Sars-Cov-2 in pregnancy will likely have mild disease and good outcomes, and pregnant women may be reassured that despite service changes, maternity services will continue to provide best possible care to mothers and infants. In all the uncertainty and turmoil, babies will continue to arrive with all the potential of new life.

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#### **References:**

1. World Health Organization. Naming the coronavirus disease (COVID-2019) and the virus that causes it. Available from: [https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-342guidance/naming-the-coronavirus-disease-\(covid-2019\)-and-the-virus-that-causes-it](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-342guidance/naming-the-coronavirus-disease-(covid-2019)-and-the-virus-that-causes-it)
2. Health Protection Surveillance Centre. <https://www.hspc.ie>
3. Mullins E, Evans D, Viner R, et al. Coronavirus in pregnancy and delivery: rapid review. *Ultrasound in Obstetrics and Gynaecology* (In press) doi: doi: 10.1002/uog.22014
4. Zeng L. Neonatal early onset infections with Sars-CoV-2 in 33 neonates born to mothers with Covid-19 in Wuhan China. *JAMA Pediatrics* 2020. Doi:10.1001/jamapediatrics.2020.0878.

5. Schwartz D. An analysis of 38 pregnant women with Covid-19, their new-born infants, and maternal fetal transmission of SARS-CoV-2: Maternal corona virus infections and pregnancy outcomes. Archives of Pathology and Laboratory Medicine 2020: 10.5858/arpa.2020-0901-SA.
6. Chen H, Guo J, Wang C, et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records. Lancet 2020 doi: [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3)
7. Kimberlin DW. Can Sars-CoV -2 infection be acquired in utero? More definitive evidence is needed. JAMA Pediatrics 2020[Available from <https://jamanetwork.com/journals/jama/fullarticle/>
8. Chen Y, Peng H, Wang L, et al. Infants born to mothers with a new Coronavirus (COVID-19). Frontiers in Pediatrics 2020;8(104) doi: 10.3389/fped.2020.00104
9. Zhu H, Wang L, Fang C, et al. Clinical analysis of 10 neonates born to mothers with 2019-nCoV pneumonia. Transl Pediatr 2020; 9(1):51-60. doi: <http://dx.doi.org/10.21037/tp.2020.02.06>
10. RCOG. Coronavirus (COVID-19) infection and pregnancy [Internet]. 2020. Available from: <https://www.rcog.org.uk/globalassets/documents/guidelines/coronavirus-covid-19-virusinfection-in-pregnancy-2020-03-09.pdf>
11. Coronavirus Covid-19. ESHRE Statement on pregnancy and conception. 19.03.2020
12. [https://www.cdc.gov/coronavirus/2019-ncov/prepare/pregnancy-breastfeeding.html?CDC\\_AA\\_refVal=https://www.cdc.gov/coronavirus/2019-ncov/specific-groups/pregnancy-faq.html](https://www.cdc.gov/coronavirus/2019-ncov/prepare/pregnancy-breastfeeding.html?CDC_AA_refVal=https://www.cdc.gov/coronavirus/2019-ncov/specific-groups/pregnancy-faq.html)
13. Breslin N. Covid-19 in pregnancy. Early lessons. AJOG. In press.
14. Bai Y. Presumed asymptomatic carrier transmission of Covid-19. JAMA 2020. On line.2/21/20e1-2.