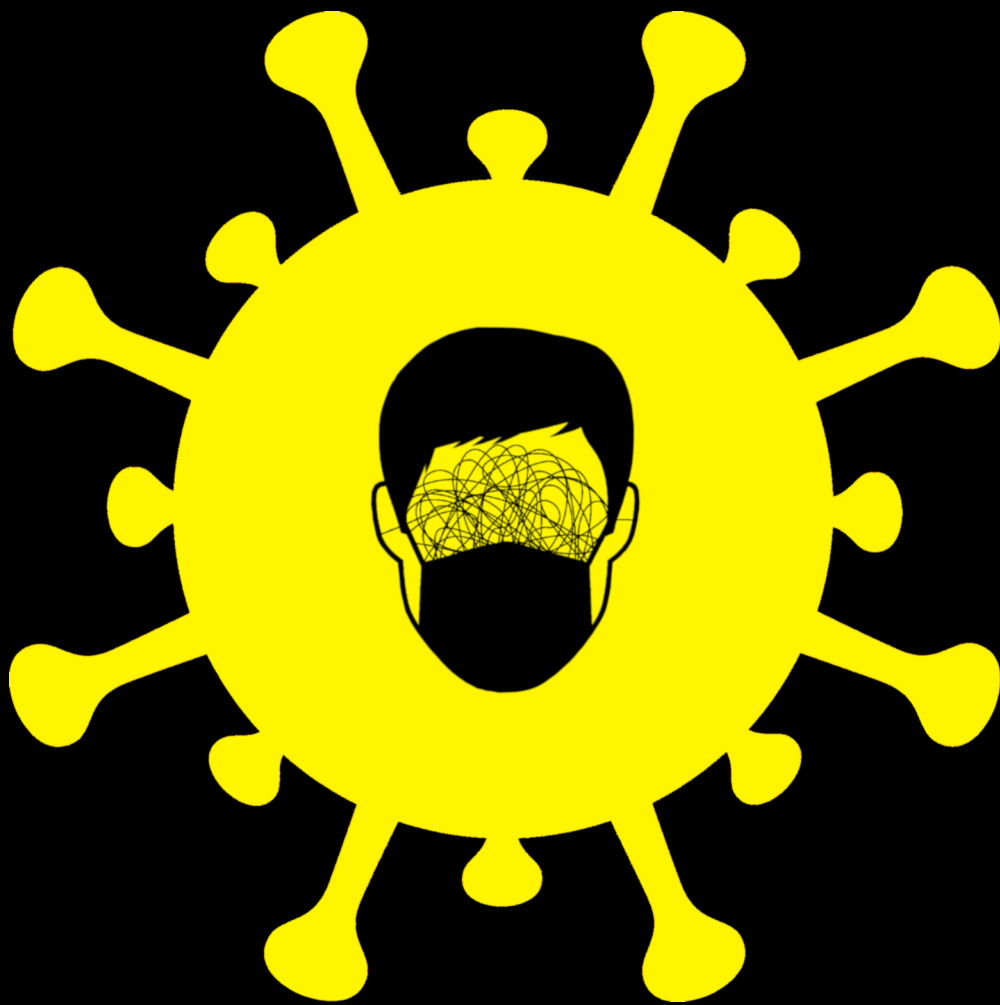


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Pandemic Perspectives: Reflections on a Post-Covid World



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Delivery of women's healthcare across the UK during the Covid-19 Pandemic

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Abstract:

The nature of global health crises means their impact is both wide-reaching and affects all aspects of society. The full extent of how this impacts different groups, notably the marginalised and minorities, is often not fully understood until years later, if at all. The Covid-19 pandemic has been no different. Yet, despite the pandemic being far from over, the way we collect data on routine health outcomes means we can gain early insights as to how the pandemic has impacted different groups within society. This is particularly relevant to women's health care which is often acute. The impact of Covid-19 on pregnancy outcomes in particular have come under significant scrutiny with an increase in poor health care outcomes identified through routine data collection across several countries.

Keywords: COVID-19, Women's Health, NHS, United Kingdom

Severe acute respiratory syndrome-associated coronavirus 2 – SARS-CoV-2

The majority of emerging viral illnesses affecting the population currently are zoonoses, viruses originating within the animal kingdom, making the 'jump' to infect humans. These include but are by no means limited to the human immunodeficiency virus (HIV), middle east respiratory (MERS), H5N1 strain of the avian influenza virus, H1N1 influenza virus, severe acute respiratory syndrome-associated coronavirus (SARS-CoV-1), Zika virus, Ebola virus and yellow fever (Ye et al. 2020; Yadav et al. 2016; Faye et al., 2014). Recently, the emergence of a second novel coronavirus, SARS-CoV-2, one of 91 coronaviruses identified in bats, 'jumping' to infect humans, is the latest zoonotic pandemic we face (Burki 2020; Hu et al. 2015; Li et al. 2005).

The high transmissibility of SARS-CoV-2, often referred to as Covid-19, initially thought to be through droplet transmission, but now understood to also be through aerosols; led to its global spread within weeks of its emergence (Korber et al. 2020; Nissen et al. 2020; van Doremalen et al. 2020; Kutter et

al. 2021; Chen et al. 2020). Symptoms of those infected with Covid-19 ranged from severe viral pneumonia, requiring multi-organ support, to a mild respiratory illness or no symptoms at all. This led to healthcare services becoming overwhelmed with patients, some needing intensive care and ventilatory support. Limited understanding of the cause, transmissibility, and treatment of this new emerging illness made planning healthcare services challenging. This was further compounded by asymptomatic and undiagnosed carriers unknowingly acting as vectors of transmission throughout society (Rivett et al. 2020). In addition to the circulation of asymptomatic carriers within the general population, controversies over the required level of personal protective equipment such as masks, and even if they were required at all, further aided the spread of the virus. Despite the eventual and widely adopted use of face coverings and fluid resistant surgical masks by healthcare workers; recent evidence, confirming the suspicions of many, has shown high grade filtering facepiece 3 (FFP3) masks provide superior protection to fluid-resistant surgical masks, yet are still not widely used except in the highest risk areas (Ferris et al. 2021). Healthcare services globally adapted rapidly, with an anticipated rise in the need for ventilators, intensive care facilities and long-term rehabilitation care. The United Kingdom responded to this anticipated need for additional National Health Service (NHS) capacity through the construction of NHS Nightingale Hospitals to meet this unprecedented demand (Proudfoot et al. 2021). As well as additional capacity within hospitals, revised care pathways to minimise in-person hospital attendance led to a significant reduction in face-to-face contact between patients and their healthcare providers (Al-Jabir et al. 2020; Jardine et al. 2021; Rimmer and Al Wattar 2020; Royal College of Obstetricians & Gynaecologists 2021). In addition to the reorganisation of healthcare services, social distancing and self-isolation were mandated in the UK. Despite the aim of these measures being to safeguard and protect those deemed at highest risk of morbidity and mortality of Covid-19, there were, as with many rapidly implemented changes to health and social care, unintended consequences. Despite significant increases in healthcare resources in response to Covid-19, healthcare crises are often accompanied by significant morbidity, arising not only from the cause of the pandemic but also from reduced access to healthcare services and treatment. Despite increased funding and provision, these services can quickly become overwhelmed and depleted (Almond and Mazumder 2005; Filippidis et al. 2017; Herp et al. 2003).

This is undoubtedly best demonstrated by the NHS Nightingale Hospitals providing thousands of additional beds yet having to turn away patients due to insufficient staff to care for them (Marsh and Campbell 2020). Although delays in accessing healthcare and definitive treatment affect all members of society, women can be disproportionately affected by this restricted access due to the nature of the healthcare they require compared to men. Women's healthcare, in particular reproductive healthcare, is often acute and in continual demand; it simply cannot be put on hold (Kanem 2020; Meggetto et al. 2021; Platts et al. 2021). The potential impacts of reduced healthcare access to women aren't simply theoretical or driven by fear of the unknown but borne out through the poor health outcomes seen in previous epidemics. More recently, adverse healthcare outcomes for women have been observed in both the Ebola virus outbreak in West Africa (2014/15) (Brolin Ribacke et al. 2016) and also the influenza A or 'Swine Flu' pandemic (2009) (Yates et al. 2010). Regrettably, both increased maternal and perinatal morbidity and mortality were reported in communities at the centre of these outbreaks (Rojas-Suarez et al., 2014, Jones et al. 2016). During the Sierra Leone Ebola epidemic, not all mortality reported during this period was a direct result of contracting the virus or the subsequent illness which ensued (World Health Organisation 2015). Fear of contracting the virus and reduction in routine healthcare provision for pregnant women led to delays in accessing healthcare for definitive treatment, allowing potentially treatable conditions to go unchecked, contributing to maternal morbidity and mortality (Jones et al. 2016). This posed a difficult question for healthcare leaders when developing service provision for future pandemics. How can the immediate needs of those affected by the infectious illness causing the pandemic, be balanced with the ongoing needs of the general population? This issue may be further compounded by the inevitable media coverage and heightened

awareness in the general population of the pandemic illness, while impacts to some groups in society remain overlooked and hidden from public view.

Despite reorganisation of healthcare services across the NHS and the UK Government's response to Covid-19, would adverse health outcomes, as observed in previous pandemics, also be seen in the UK? Or would measures to ameliorate poor health outcomes and lessons learnt from past crises, lead to changes in how healthcare is provided and ensure those in need of care received it?

Women's healthcare in the United Kingdom – the first wave

A recent survey of NHS doctors working in obstetrics and gynaecology captured responses from 148 hospitals from all regions of the UK and explored changes in the provision of women's healthcare during the first wave of the Covid-19 pandemic (Rimmer and Al Wattar 2020). The survey focused on four areas in particular; care for women in labour, antenatal and postnatal care, benign gynaecology and gynaecology-oncology services.

Despite widespread reporting of reduced access to personal protective equipment (PPE), the majority of respondents reported access to PPE and undergoing face-fit-testing for FFP3 masks; although many have disputed the adequacy of the NHS's PPE policies and criticise them for the lack of protection from aerosol transmission (Thomas et al. 2020a; Thomas et al. 2020b; Greenhalgh et al. 2021). Changes in antenatal care and early pregnancy care saw a significant increase in telemedicine and telephone consultations, with a reciprocal reduction in face-to-face appointments. This was accompanied by modifications to screening pathways to best capture developing illness while maintaining reduced in-hospital attendance by patients (Jardine et al. 2021). Modification to guidance in managing early pregnancy complications such as ectopic pregnancy and pregnancy loss were reported by over half of all units (Rimmer and Al Wattar 2020), leading to an increase in non-surgical management, with no increase in complication rates reported but with fewer hospital attendances (Platts et al. 2021). The use of telemedicine was used for women undergoing medical termination of pregnancy, with women offered the choice to attend a face to face or telephone consultations. A qualitative assessment of a small cohort of these women found the choice of telephone consultation and the option to carry out the procedure at home enabled them to access these services rather than act as a barrier (Boydell et al. 2021).

As well as adaptations to pregnancy care, benign gynaecology, fertility services and gynaecology oncology services also underwent radical reorganisation. Most units paused fertility and urogynaecology work, despite being considered by many to be non-emergency work; this raised numerous ethical challenges (Rimmer and Al Wattar 2020). Women seeking assisted reproduction will likely be doing so based on a medical history of poor reproductive outcomes, notably pregnancy loss, miscarriage and unsuccessful IVF. Aside from the psychological aspects of having fertility treatment paused indefinitely, there are also medical considerations, notably the widely accepted view that female fertility declines rapidly after the age of 37 (American College of Obstetricians and Gynecologists 2014). This will likely have detrimental outcomes on these patients' mental wellbeing and potentially their future pregnancy success.

Similar issues arise when considering the impacts to oncology services. Not only must healthcare services care for those with an established diagnosis and undergoing treatment but also ensure those with symptoms of cancer are seen and assessed. A survey of 148 NHS units identified over 50% of the departments had not altered their cancer referral pathway (Rimmer and Al Wattar 2020); likely reflecting the wish to maintain these services and ensure the imperative '*stay at home and protect the NHS*', a slogan frequently used by the UK Government, did not inadvertently lead to delays in cancer diagnoses and treatment. Interestingly one in four units reported they had moved oncology

surgery to a different site or hospital, while one in three reported they cared for patients following surgery in a different part of the hospital. Relocation of oncology services to different hospital sites and locations within hospitals would likely reduce transmission to these patients; many at higher risk of serious and prolonged illness should they contract Covid-19 (Cavalcanti and Soares 2021).

Covid-19 and the first wave morbidity and mortality in women's healthcare

The NHS and wider global response to the Covid-19 pandemic have represented one of the great healthcare challenges of our generation. Rapid characterisation of the virus, genomic sequencing of novel variants and the development of numerous vaccines has seen Covid-19 go from an unknown entity to a well-characterised virus we understand and, to some extent, predict its transmission. Unlike previous pandemics, Covid-19 has occurred in an era of robust, routine data collection, allowing us to understand its impact on wider society and specific groups. The initial assessment of 148 NHS units' provision for women's healthcare was a wide-reaching 'snapshot' of how care had been transformed. However, this was unable to assess the impact of new referral pathways and reduced face-to-face appointments on morbidity and mortality.

Despite major reorganisation of healthcare services and rapid development of guidance for the care of women, especially those who were pregnant, poor health outcomes have been reported across the UK and globally. The first report of poor health outcomes was the identification of a rise in the number of stillbirths in a London hospital (Khalil et al. 2020). The authors compared the number of stillbirths identified in a 4-month period preceding the identification of Covid-19 in the UK compared to the first months following the identification of cases. Although in a single hospital, the increase was statistically significant, and none of the women who suffered a stillbirth was reported as being infected with SARS-CoV-2. At the time of this work, the UK government was offering limited testing for asymptomatic patients leading to the possibility that some may have had Covid-19 but were not diagnosed as such.

A later study pooled the results of 31 individual studies in a meta-analysis and identified numerous poor outcomes. Two of the largest studies with over 3 million pregnancies compared the risks of maternal death before and during the pandemic, sadly identifying a significant increase in maternal mortality, although this was significantly influenced by one study in particular (Chmielewska et al. 2021). Other outcomes included increased postnatal depression, suggestive of poor mental health in this vulnerable population; however, reassuringly outcomes including pre-term birth, maternal hypertension and post-partum haemorrhage were unchanged. A further review reported maternal and neonatal outcomes across 18 countries identified those with a Covid-19 diagnosis had higher rates of obstetric disease such as pre-eclampsia, pre-term birth and general perinatal morbidity and mortality (Villar et al. 2021), in contrast to the aforementioned review by Chmielewska *et al.*

Despite variations in the reported impact of Covid-19 on women's health outcomes, the overall impact will not be fully realised for years to come. Despite the significant reorganisation of healthcare services to accommodate those with Covid-19 in need of high-level care and treatment, the provision of healthcare services for women remains an ongoing issue. Covid-19, in many respects, is no different to past pandemics where we have seen women's health outcomes adversely affected. Finding the best way to ameliorate the impact on women's health is a challenge, and solutions may vary substantially from country to country. The UK in particular, limited the attendance of a birth partner when admitted to hospital, permitting their presence only for the birth and often not allowing them to return following this. Although motivated by the hope of reducing transmission to staff, the relative isolation experienced by labouring women, for what is a defining moment of their lives, is unlikely to promote their mental wellbeing.

As routine and elective healthcare re-starts across the UK and further afield, policymakers need to reflect on the potential impacts Covid-19 has had and may continue to have as we decide which aspects of care to prioritise. Many would argue the impact on cancer care should take priority, with predicted cancer deaths now much higher than previously anticipated (Maringe et al. 2020). While other health care professionals and patient groups argue treatment of chronic and painful conditions should be prioritised. With regards to women's healthcare, uptake of Covid-19 vaccinations while pregnant is the latest challenge to be overcome, with many remaining cautious of potential, unknown impacts on their pregnancy and unborn child. This has been accompanied by increasing numbers of unvaccinated individuals requiring intensive care, compared to those receiving the vaccine, some of whom are also pregnant. How health care workers and policy makers will overcome these issues is far from clear, with the decision to receive a vaccination being at the discretion of the individual. What is clear is the wide-reaching impact of the latest pandemic; Covid-19 has challenged and brought under scrutiny many of the ongoing issues faced by healthcare services today. As with past pandemics, women's pregnancy outcomes have been adversely affected and further work is needed to curtail unwanted clinical outcomes in the future months and years the Covid-19 pandemic, and future healthcare crisis, which are sure to arise.

Competing interests

The author has no competing interests to declare.

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