


## Review Article

# Novel Corona Virus Disease: A Narrative Review of the Guidelines and Protocol for Care in the Context of a Pandemic

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## ABSTRACT

Emerging diseases such as COVID 19 have put an added strain to the already weak health systems in resource limited countries such as Nigeria. Guidance on how to manage suspected or confirmed COVID 19 cases in pregnancy are evolving and constantly being updated as the infection is better understood. We present a review of the available guidelines in pregnancy. Google scholar and Pub Med were searched for maternal guidelines on women infected with COVID 19. No period limitations were used in the search. Terms imputed into the search engine were 'COVID 19', 'pregnancy', 'Maternal guidelines' and 'pregnant women' In total, 23 articles were detected and analyzed for practical recommendations. Seven were discarded because they did not provide practical guidelines for care. Recommendations were classified into prevention for Antenatal patients, Treatment of the pregnant woman with COVID 19, Management in labor and postpartum periods in women with COVID 19. Many of the recommendations for pregnant women with COVID 19 have limited evidence supporting their implementation and further studies are needed to improve the strength of recommendations for this emerging disease. No consensus or clear evidence exists regarding timing of delivery or route of delivery and patients are best managed on individualized basis.

**Keywords:** COVID 19, Management guidelines, pregnant women.

## INTRODUCTION

The new corona virus (SARS-CoV -2) is caused by a new strain of corona virus which originated in 2019 from Wuhan China and has fast become a pandemic affecting all continents in the world. It has an infectious syndrome that often starts with flu like symptoms of headache, body pains, cough and fever in varying degrees but in its severe forms, it can be complicated by severe respiratory distress and ultimately death.<sup>1</sup> Descriptions of its course in pregnant women are limited but in China where the virus was first reported, symptoms in pregnant women were said to be indistinguishable from those in the

general population but cases of infected newborns suggested that peripartum or neonatal transmission could be possible.<sup>1</sup> Projections are that 2-3 persons will be infected from an index patient making this a public health emergency in vulnerable populations with already weak health systems and insufficient health care personnel often ill equipped to manage the infection. As at March 16 2020, confirmed cases worldwide were 180,000 with more than 7000 deaths. Pregnant women and their fetuses are at risk during disease outbreaks because the physiological and mechanical changes of pregnancy make them generally susceptible to infections with rapid progression to respiratory failure. Literature has documented outcomes in

55 pregnant women with COVID 19 and 46 neonates but there has been no definite evidence supporting vertical transmission.<sup>1,2</sup>

Nigeria has activated the national Emergency Operations Centre (EOC) to level 3, the highest level, on 27th February 2020. The EOC is leading the national public health response to the COVID-19 outbreak in Nigeria. The NCDC is also working closely with State governments of all affected states through the deployment of national Rapid Response Teams (RRTs) to support response activities including contact tracing and as at June 15th 2020, the confirmed cases of COVID 19 were 16,658 in Nigeria with 424 mortalities.<sup>3</sup> There is currently no data on the number of COVID 19 positive pregnant women in Nigeria.

The immunological bias in pregnancy that favors T-helper (Th2) cell dominance while protecting the unborn fetus, leaves the pregnant woman more vulnerable to viral infections which. Other than the considerations of the gravid patient and her fetus, concerns about the safety of care givers like the obstetricians and other medical personnel that may be exposed to potentially infectious yet asymptomatic patients while providing services are real.

We reviewed options for clinical care models that spanned the course of antenatal, intrapartum and immediate postpartum care in the context of the COVID 19 pandemic.

### Guidelines on parental care

The general guidelines for infection prevention and control (IPC) is Standard and transmission based precaution is advocated for healthcare workers. The guidelines for prevention of COVID 19 in antenatal patients are the same as those for the general population and the NCDC recommendation is that respiratory hygiene, the use of face masks, hand hygiene and the World Health Organization (WHO) standard of physical distancing of a minimum of 2 metres is maintained. Pregnant women are also counselled to stay indoors except for antenatal visits while those that have been exposed to confirmed COVID 19 positive patients or have pyrexia or new onset of continuous cough are to self-isolate for 14 days while contacting the NCDC who will continue assessment to confirm the diagnosis. Such patients are also to postpone antenatal visits until the isolation period and reduce antenatal consultations.<sup>4</sup> Additional recommendations for the general populace regarding suspect cases, probable and confirmed cases are applicable in pregnancy along with the use of personal protective equipment (PPEs) for triage of patients at service points namely face masks and gloves with N95 masks and face shields reserved for health care

workers whose duties may generate aerosols.<sup>5</sup>

The Nigerian guidelines for prenatal care of pregnant in the context of the COVID 19 pandemic generally mirror the WHO guidelines but are silent on the specific obstetric management of symptomatic COVID 19 patients. The Royal College of Obstetricians in their guidelines recognize that there could be a cohort of asymptomatic COVID 19 patients in the general population and among a population pregnant women who may initially have mild symptoms of flu like illness which may worsen towards the end of the third trimester but with small absolute risks for severe disease.<sup>6</sup> The additional risks of hypercoagulability that COVID 19 confers on pregnancy makes maternal venous thromboembolism more likely, this is an additional consideration when reduced mobility from isolation at home or during hospital admissions becomes necessary for antenatal patients with this infection.<sup>7,8</sup>

There are a few case reports of pregnant women requiring ventilation and extracorporeal oxygenation with a maternal and intrauterine fetal death at 30 weeks gestation attributable to COVID 19 in the Republic of Iran.<sup>9,10</sup> In general the advice on social distancing during antenatal visits is consistent in all the analyzed guidelines particularly for women at 28 weeks of gestation and beyond. Women with previous uncomplicated deliveries are to communicate with their obstetricians via dedicated phone numbers to counsel on routine visits which are handled on individualized basis. Service modifications the RCOG instituted in the face of the COVID 19 pandemic are reduced inductions of labour for indications adjudged not to be necessary and the reduction of routine ultrasound scans for growth monitoring, vigilance in screening for exposure to COVID 19 patients is encouraged both by the NCDC, RCOG, and American College of Obstetricians and Gynecologists (ACOG).<sup>11,12</sup>

ACOG recommend that facilities consider universal testing for women presenting in delivery units with Polymerase Chain Reaction (PCR) tests on nasopharyngeal swabs particularly in areas with high prevalence rates of COVID 19 given the likelihood of patients with asymptomatic disease presenting in such units.<sup>12</sup> However, the feasibility of implementing this particularly in resource constraint settings is daunting, due to limited access and long turn around time. No such recommendation is advocated for patients in antenatal clinics. What is more feasible in the context of delivery period is rapid diagnostic tests that can give results within 15 minutes.<sup>12</sup>

The Royal Australian and New Zealand College of

Obstetricians and Gynaecologists (RANZCOG) has guidelines tailored for resource limited settings and recommends antenatal visits only when necessary with a sitting distance of at least 1 metre between women in well ventilated areas with a large verandah preferably. Any patient that meets case definition criteria is to wear a mask and be isolated from other patients. Restriction of routine scans is also recommended.<sup>13</sup>

There is no evidence currently available to suggest an increased risk of miscarriages with COVID 19 and there is no evidence of congenital effects on fetal development but preterm births have been documented in a few case reports, it is not clear whether these were iatrogenic. Counselling of patients should be so directed.<sup>11,12,13</sup> For confirmed infections in the antenatal period, management principles are the same as for the general population but the WHO advises an oxygen saturation target of 92-95% or greater.<sup>13</sup>

### **Intrapartum Care**

It is recommended that women with suspected or confirmed COVID 19 infection in labour are to be received in designated isolation centers within or near the labour ward and should wear face masks. Attending health care workers are to use appropriate PPEs (fluid resistant surgical masks with visors, aprons and gowns and surgical gloves). Other assessments should be as for other parturients. The infection itself is not a contraindication to epidural analgesia. Management by a multi-disciplinary team is recommended intrapartum and postpartum in designated isolation centers. The consultant anaesthesiologist, obstetrician and neonatologist and neonatal nurse with infectious disease unit are to be part of the team and oxygen saturation should be at 94% intrapartum. Asymptomatic patients are to wash their hands frequently.<sup>11,12,13</sup>

The increased risk of acute respiratory distress syndrome in these patients makes it important for close monitoring of fluid balance in women with moderate to severe disease and the use of intravenous fluids is to be minimised.<sup>13,14,15</sup> Asymptomatic birth partners are encouraged to stay with parturients that are not suspected to be infected with COVID-19 and while the pandemic persists, maternity unit staff are encouraged to ask for respiratory symptoms ideally via a phone call before they present to the labour ward, this applies to accompanying individuals as well. Maternity units are encouraged to have systems that patients with symptoms suggestive of COVID-19 before they sea in waiting areas and isolate those with suspected infections. The number of staff in the labour room should be

minimized as is compatible with safe practice and local protocol. Currently there is no evidence to favour one mode of birth over another except there are obstetric indications for intervention or if there is respiratory distress in labour Low Molecular weight heparin is recommended as soon as possible after birth but 4hours after the last dose of spinal injection has been given if the patient received epidural analgesia.<sup>11,12,13</sup>

### **Postpartum Care**

There is limited data to guide post-partum care for COVID-19 positive women but women and healthy babies should be kept together as there are potential detrimental effects on feeding and bonding if they are separated.<sup>11,12,13</sup> In a six Chinese cases studied, breast milk tested negative for the virus and the risks are with infective droplets from an infected mother but the benefits of breast feeding outweigh any risks however breastfeeding women must practice respiratory hygiene and use face masks while routinely cleaning and disinfecting surfaces. Health care personnel managing such patients must use PPEs working in isolation centers that are overseen by multidisciplinary teams.<sup>9,11,12,13,14,15</sup>

Wherever patients are managed during this pandemic, the Medical and Dental Consultants Association of Nigeria (MDCAN) recommends that PPEs be available along with hand sanitizers and a triage and holding area, isolation rooms and a dedicated ambulance.<sup>16</sup>

### **CONCLUSION**

The COVID-19 pandemic is at various stages of spread in it's course across the globe and presents new challenges to health care personnel including those managing pregnant women. Screening, contact tracing and meticulous adherence to respiratory hygiene are important in containing infections while research to better understanding the epidemiology and treatment of COVID-19 continue. The general guidelines for infection prevention and control (IPC) is Standard and transmission based precaution is advocated for healthcare workers.

### **Conflict of interest**

There was no conflict of interest in performing or reporting this review article.

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