

# Risk of transmission of COVID-19 virus infection from asymptomatic COVID-19 positive pregnant patients to Obs/Gynae surgical team

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<sup>1</sup> Conception of study

<sup>1,2,3</sup> Experimentation/Study conduction

<sup>3</sup> Analysis/Interpretation/Discussion

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## Abstract

**Introduction:** COVID 19 is a highly contagious disease and Health care workers are always at risk because they are involved in the care of suspected, asymptomatic, and confirmed cases. It is worthwhile to adopt all practices for the prevention of the disease, so they will be able to continue their duties without fear and stress of carrying the infection.

**Objective:** To determine the number of health care workers who became COVID positive after performing caesarian sections or normal vaginal deliveries of COVID positive asymptomatic cases.

**Materials and Methods:** This study was conducted in the Gynae/Obs department Of Shalamar Hospital Lahore from March 2020 to September 2020. All the health workers involved in surgeries and deliveries of COVID-positive patients were included and they were asked to fill the proforma related to their exposure and development of any signs and symptoms of COVID-19 during fourteen days after exposure. Findings were summarized and analyzed by using SPSS VERSION 22.

**Results:** A total of twenty patients who were COVID positive were delivered during this period. Sixty health care workers were involved in their care. During the study period three health care workers two doctors and one staff nurse became COVID positive. The health workers who became infected were not involved in the surgery or delivery of these 20 COVID-positive patients.

**Conclusion:** If all the health care workers take all corona precautionary measures while performing deliveries and C-sections of COVID positive patient's risk of transmission to the surgical team can be reduced.

**Keywords:** COVID-19, Health care workers.

## Introduction

The greatest challenge faced by today's world is the Coronavirus COVID-19 pandemic. The problem which began as a little viral epidemic in Wuhan has now involved the entire earth planet.<sup>1</sup> Almost every person is affected by this pandemic directly or indirectly. This viral disease is highly contagious. The outbreak which was started in December 2019 in China spread rapidly WHO declared it a pandemic on 11 March 2020.<sup>2</sup> Disease is still progressing. Research is suggestive that people of all ages are susceptible to COVID-19. The potential infectiousness of asymptomatic cases has been highlighted in many studies and it is now well established that asymptomatic carriers can transmit the virus to others.<sup>3</sup> Healthcare systems in many countries started to collapse in the beginning due to COVID because no one was prepared for this unexpected pandemic. The healthcare workers being the frontline workforce in this battle against the corona virus started to get infected by this virus globally. In Pakistan, a total of 521,211 persons were infected by this virus, out of which 3,196 were health care workers and these numbers continue to rise.<sup>4</sup> Although they are at increased risk but still, they have to fight and serve patients because patient care and support is their duty.

Protection of our health care workers is a major concern and need of time because if they are not well protected more and more health care workers will get infected and the health care system will collapse. This is a new disease and when the pandemic started no country is prepared for it. Different strategies are adopted to reduce the transmission of the disease. It is worthwhile to invest in various COVID-19 prevention efforts including health education and innovative practices based on local evidence.<sup>5</sup> Throughout the world surgical procedures are considered to increase the risks so elective surgeries were reduced to avoid exposure and to save health care resources for patients with COVID 19.<sup>6</sup> Obstetrics is a unique branch of medicine, we can't postpone our cesarean sections and deliveries of pregnant lady as we have to save the life of mother and fetus.<sup>7,8</sup> In our hospital we tried to adopt strategies for better care of pregnant ladies and at the same time protecting our health care workers including doctors, nurses, and paramedics. Testing of all pregnant ladies who are near term or scheduled for c section is started by PCR for COVID-19. The ladies who are positive for COVID-19 and not in labor or not in urgent need of c section were referred to the health care facility of government for COVID-19 pregnant women. But many times, we received women who are

in advanced labor or need an urgent cesarean section with the report of the COVID test awaited. We have to provide services to these ladies despite all our concerns and fear of getting infected. As a protocol of our department, we use full PPEs provided by the hospital including, gowns, gloves, face shields, and goggles while performing surgery in these patients. Moreover, surgery is performed in specially prepared operation theatres with negative pressure ventilation and under spinal anesthesia. But each time we perform surgery on the patient who turned out to be COVID positive leads to much mental stress and fear to the surgeon of becoming infected herself or guilt of becoming a source of transmission of infection to their families. We performed this study to determine how effective these strategies in protecting our health care workers working in obstetrics so we will become more confident while catering to a patient who is COVID positive but asymptomatic.

**The aim of the study is:**

- To determine the number of health care workers who became COVID positive or symptomatic after performing caesarian sections or normal vaginal deliveries of COVID positive asymptomatic patients.

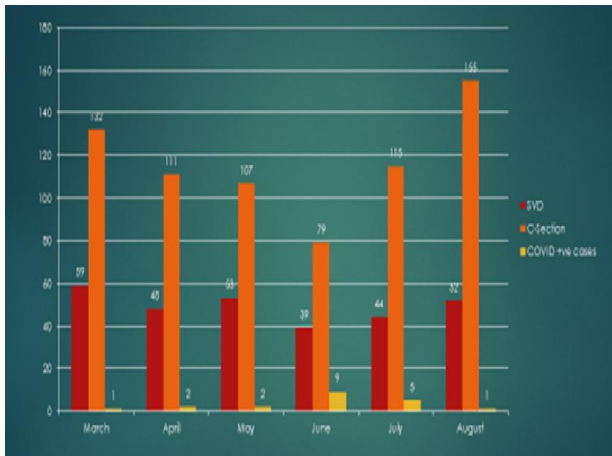
## Materials and Methods

This retrospective descriptive study was conducted over six months from March 2020 to September 2020 at the Obstetrics and Gynaecology department of Shalamar Hospital Lahore. Our study population was healthcare workers involved in surgeries and deliveries of COVID-positive asymptomatic patients. Purposive sampling was employed. We included all the healthcare workers involved in surgeries and deliveries or shifting and handling of PCR COVID positive patients. We excluded the healthcare workers working in post-operative wards.

We traced a record of COVID-positive patients and noted the healthcare workers involved in their surgery/ delivery. These healthcare workers were given a Performa to fill that included questions related to their exposure, signs, and symptoms, and their COVID testing within 14days after exposure.

The data was entered and analyzed using SPSS version 22.0 and frequencies and percentages were calculated for qualitative variables and means, standard deviations of quantitative variables like age were calculated. A Chi-square test was applied and a P-value of <0.05 was considered significant. Results are expressed in the form of graphs and tables.

**Results**



**Figure 1: Total number of Patients delivered either vaginally or by C Section from March 2020 to August 2020 and number of COVID positive patients each month**

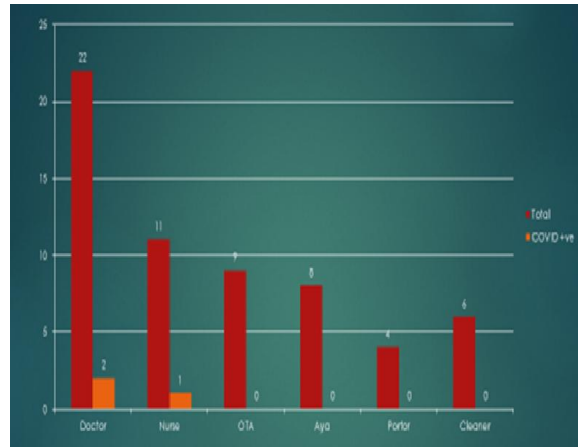
The total number of patients delivered during the study period was 991. Out of these 20 (2.01%) were found to be COVID positive.

**Table 1: Details of health care workers involved in surgery of 20 COVID positive patients**

Health workers	Number
Doctors	22 (36.6%)
Nurses	11 (18.3%)
OTA	9 (15%)
Ayas	8 (13.3%)
Cleaners	6 (10%)
Porters	4 (6.6%)

**Table 2: Health care workers become COVID positive during the study period**

Health workers	Number of health workers who become COVID positive
Doctors	2
Nurses	1
OTA	Nil
Ayas	Nil
Cleaners	Nil
Porter	Nil



**Figure 2: Total number of Health Care Workers involved in Surgeries/ Deliveries and Handling of patients**

Total 60 health workers were involved in the surgeries and deliveries of the COVID-positive pregnant patients. The age range of health workers was 25 to 45 years and the mean age was 29.9 years. 51(85%) were females and 9(15%) were males.

During the study duration only three health care workers from the department, two doctors, and one staff nurse were tested positive for the COVID-19 virus.

When we traced the record of these COVID positive health care workers, two doctors one staff nurse who became positive in the department, were not from these 60 health care workers who were directly involved in surgeries of these particular 20 COVID positive patients. When we did contact tracing of these three health workers, they have a history of exposure to COVID patients outside the hospital.

The results of our study were encouraging and ensuring for the health care workers.

**Discussion**

Results of our study are encouraging that if take proper precaution we can minimize the risk. Infection control measures are beneficial. WHO also advocates that the available scientific evidence supports that personal protective equipment, hand hygiene practice, implementation of universal masking policies in health care facilities, and infection prevention and control training will decrease the risk of COVID-19 among health workers.<sup>9</sup> The surgical staff needs to familiarize themselves with appropriate infection control strategies. As the health workers are frontline, the latest literature review also emphasizes that proper

safety measures must be adopted during performing procedures. Every health system has gaps and identification of these gaps and protection of health care workers is required in this fight against the Corona virus. All members of the surgical team must familiarize themselves with appropriate infection control strategies. While working with suspected cases wear gloves, plastic apron, fluid retention gown, FFP3 respirator, and eye and face protection.<sup>10,11</sup> In our hospital we are using similar PPEs while performing surgeries. If the health care team is not properly protected more surgeons will get infected and are forced to quarantine and the health care system will collapse. The large proportions of patients are asymptomatic and the risk of getting an infection from them during surgery is high due to close contact and prolonged exposure. During a pandemic regardless of the symptoms, all patients should be considered suspects of COVID.<sup>12</sup> There is an ongoing need for infection prevention and control. New practices and protocols must be adopted to decrease the risk of transmission and for the care of patients and the safety of staff. Alsofayani et al in their review of surgical preparedness at four major medical centres in Saudi Arabia recommended that each hospital need to develop a national guideline based on health care level and available resources.<sup>13</sup>

The surgical workforce has distinct challenges and specific concerns as compared to other specialties related to the best approach for the care of the workforce as well as effective delivery of surgical care.<sup>14</sup> It is very much required to observe universal pandemic precautions including proper PPEs whenever surgical care is provided. Many hospitals have adopted the policy of universal testing for COVID 19 infection of all patients symptomatic or asymptomatic before surgery but in obstetrics, we can't wait for the results of the test and can delay the procedure especially during emergency conditions. For surgery, correct settings of the operating rooms are essential during surgery in the pandemic of COVID-19.<sup>15,16</sup> In our study, we performed surgeries in operation theatre with negative pressure. Gennaro et al also advocated OR must have high efficient particulate air filter with negative pressure and a high air exchange cycle rate.<sup>17</sup> Chew et al also recommended for suspected and confirmed cases a pressure-controlled operating room is required.<sup>18</sup> Operation rooms are considered as a high-risk place for COVID-19 due to aerosol-generating procedures, so worldwide literature supports the surgeries in negative pressure operation rooms.<sup>19</sup> There is an

ongoing need for infection prevention and control. New protocols and practices must be adopted to decrease the risk of transmission.<sup>20</sup>

We recommend that during the COVID-19 pandemic updating health care providers about safety measures, proper provision, and emphasis on the use of personal protective equipment and special setups in ORs are essential to avoid the risk of transmission from the surgical field and might help to reduce their fear and worries while operating or dealing with patients during COVID-19 pandemic. Every hospital needs to have its infection control team and negative pressure ventilation theatres and should provide their health care workers with personal protective equipment.

The limitation of our study is its small sample size, but we want to share our experience of adopting strategies for the protection of our health care workers. We recommend similar studies must be done in other hospitals so we can get a generalized picture about what are their experiences while dealing with COVID-positive asymptomatic patients and what strategies they are using to protect their health care workers in the COVID-19 pandemic.

## Conclusion

Our study concludes that if a healthcare worker takes all Corona precautionary measures while conducting deliveries and C-sections of COVID positive patients, the risk of transmission in the Gynae/Obs surgical team can be reduced.

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