



# The management of newborns of mothers who are COVID-19 positive in a "COVID-free" hospital in Italy

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**Abstract**

The strategies planned by the Italian Ministry of Health to manage the COVID-19 pandemic include the centralisation of positive subjects in specific centres (Hubs) as well keeping others "COVID free". However due to the large number of positive subjects, the beds available have sometimes been inadequate.

All pregnant women, at admission to the hospital, are screened and, if positive, sent to an Hub, but in the case of known positivity after birth, without bed availability, we structured a plan to complete the hospitalisation in our department of asymptomatic mothers with negative newborns.

From October to December 2020, eleven babies were born to mothers who tested COVID-19-positive after delivery. Seven of them completed hospitalisation in our department.

No complications in mother-baby dyads and no contagion among hospital staff were found.

This strategy, even in a limited number of cases, allowed the management without complications for both patients and healthcare professionals.

**Introduction**

COVID-19 is a pandemic that began in 2019 in Wuhan (Hubei Region, China) and subsequently spread globally. In Italy, recent data report approximately 2 million people infected and an overall mortality of 3.5%. The incidence varies significantly among regions and provinces, and Lombardy has the highest mortality rate (5.3%) for 500,000 infected individuals [1].

The Ministry of Health has planned various strategies to manage the pandemic, including the centralisation of COVID-19-positive subjects in specific hospitals (hubs), to keep "COVID free" the other centres.

San Giuseppe Hospital is a health centre part of a hospital organization consisting of several units allocated throughout the city of Milan in the Lombardy region. Health management decided to keep it "COVID-free" because it is the only hospital with the delivery room, as it sent every COVID-19-positive patient to other centres.

The recommendations drafted for the management of pregnancy and childbirth provide the execution of a swab for the identification of COVID-19 for all pregnant

women admitted to hospital. In case of positivity, even without symptoms, the subject is transferred to one of the hubs previously indicated by the Regional Government to carry out the delivery. Unfortunately, during the period of greatest incidence of the pandemic, the number of positive pregnant women sometimes exceeded the number of available beds in the hubs. Furthermore, the timing of the diagnosis obtained with nasopharyngeal swabs occasionally did not allow identification before delivery of asymptomatic patients. In fact, it was possible to perform swabs for COVID-19 during the pre-hospitalisation phase only for the scheduled deliveries, justifying the sometimes delayed positive response in the remaining cases. Therefore, we developed a specific procedure to manage these eventualities.

**Methods**

In cases of positivity for COVID-19 infection in asymptomatic pregnant women, we prepared the following paths:

- laboratory response received before delivery: transfer of the woman to a Hub Centre;
- laboratory response received after delivery:

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- Availability of a bed in a Hub Centre: transfer of the mother and baby as soon as possible;
- Unavailability of a bed in a Hub Centre: maintaining of mother and baby in an isolation room in our Obstetrics Department, up to discharge.

An isolation procedure was already in use to manage mothers who, after birth, were awaiting the laboratory test for COVID-19 infection. These women, out from the delivery room, were temporarily accommodated in some rooms located in a specific section of the Obstetrics Department. The personal protective equipment (PPE) was placed outside each room, and all the staff were informed of its use.

The newborn, after an evaluation performed by the neonatologists in the delivery room, goes in the same room as the mother, who is awaiting the results of the swab. In the case of admission to the Neonatal Pathology section, the baby is placed in an incubator located in an isolated room and is managed by dedicated personnel equipped with PPE.

The mother and newborn remain separated from other patients until swabs for COVID-19 are obtained, and no one, including the father, is allowed to visit them.

If the mother is COVID-19-positive and it is not possible to find a bed in a Hub Centre, we apply the following policy:

- We check for the virus in new-borns by swab, and if positive, we transfer the baby and mother to the Neonatal Reference Centre for further investigations and treatments; if negative, the dyad remained in the same room until discharge, and no relatives had access to visit them;
- In the case of discharge before 48 hours, a home neonatal evaluation by a midwife team is planned, within the following 36 hours, to carry out the metabolic screening and to assess the dyad wellness;
- Scheduled telephone contact between family members and neonatologists is usually performed within 5 days of discharge to obtain information on baby health status and growth.

## Results

In San Giuseppe Hospital from October to December 2020, 11 babies were born to mothers who were COVID-19-positive and were identified after delivery. Three new-borns were transferred with mothers to the Hub Centre within 12 hours of life. One baby who tested positive for COVID-19 was transferred to the Neonatal Referral Centre 14 hours after birth. The remaining seven cases were managed in our hospital up to discharge, generally occurring 48 hours after birth. In two babies, a dedicated team of midwives carried out the screening for metabolic diseases to be performed between 49 and 72 hours of life according to laboratory specifications, directly at home.

Early discharge did not cause nutritional or clinical problems requiring any treatment or rehospitalisation within 30 days, and no other complications were reported. No contagion has been reported among Neonatology and Obstetrics Department staff or in the midwives assigned to home care.

## Discussion

The Health Department of Lombardy recommends transferring COVID-19-positive pregnant women to dedicated hubs, both for delivery and all hospitalisation times. Therefore, two centres for COVID-19-positive mothers have been identified in the city of Milan, ten hubs for the remaining region, and a single regional hub for the management of COVID-19-positive infants [2].

Approximately, 9,000 new diagnoses of COVID-19-positive cases were reported per day between October and December 2020 [3]. Therefore, because of the high rate of hospitalisations in dedicated COVID-19 centres, the number of beds was sometimes inadequate.

In case the mother was COVID-19-positive, we performed an extensive search for dedicated beds in the city hubs, and only if there was no availability did we keep the woman in our hospital. This solution was chosen because of the great distance between San Giuseppe Hospital and the Centres outside Milan (approximately 80-100 km) and the short hospitalisation time (48-72 hours) of physiological delivery.

The management strategy was developed following the indications of the American Academy of Pediatrics [4], the most recent literature on the management of women with positive or suspected COVID-19 infection [5,6], and the guidelines of the Italian Institute of Health on the safety of health workers [7].

We applied the procedure exclusively to positive asymptomatic mothers who completed the delivery before knowing the result of the swab and with negative neonates. We found only one neonate who was asymptomatic for COVID-19, and he was transferred to the Neonatal Hub for monitoring and specialist assessments [8].

To monitor the infection risk, a swab for COVID-19 research was performed every two weeks for all staff. No positivity was found, confirming the effectiveness of the use of PPE, which was achieved by following the guidelines of European Centre for Disease Prevention and Control [9].

Therefore, we consider the best choice for pandemic management to concentrate COVID-19 positive patients in specific hospitals. However, due to the high number of the infected and the consequent saturation of available beds, we forced to prepare a plan to manage at least the asymptomatic mother-child dyads in our "Covid free" centre. This solution, even in a limited number of cases, allowed the management of these specific types of patients without complication for both patients and healthcare professionals.

## Grant Details

The management procedure involving the Neonatology and Obstetrics departments has been evaluated and approved, as "internal rule", by the Health Department of the San Giuseppe Hospital.

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