SARS-CoV-2 Infection in a Pediatric Department in Milan

A Logistic Rather Than a Clinical Emergency

To the Editors:

The number of subjects infected with SARS-Cov-2 is dramatically increasing in Lombardy, Northern Italy, since February 21, 2020, leading to an infection chain that represents the largest coronavirus disease 2019 (CoVID-19) outbreak in Europe to date. Nowadays, few SARS-Cov-2–positive children have been admitted to pediatric departments. In winter season, a huge number of children with acute respiratory failure needs to be hospitalized in pediatric ward/pediatric intensive care units if ventilated. This setting could be very difficult to have clinical criteria aiming to isolate suspected SARS-CoVID-2 children to avoid spreading of infection among health care professionals, other patients and visitors. The aim of this report is to document our experience in facing pediatric CoVID-19 emergency in Milan.

The major issues we are encountering could be summarized as follows:

- To define a univocal definition of pediatric suspected case.
- To avoid a waste of resources.
- To define pediatric isolation areas able to include 1 parent.
- To plan a correct patients' flow, from hospital admission to isolation in proper ward or pediatric intensive care units, limiting the healthcare professionals and other patients' exposure.
- To adapt family-centered care approach allowing a good balance between the presence of one of the child parents during hospital stay and the best intrahospital infection control.
- To develop a procedure to guide decision in removing "low-risk patients" from isolation room in case of imbalance between sources and needs.

The current World Health Organization (WHO)/ECDC definition of suspected case is not focused on pediatric population. According to WHO/ECDC criteria, suspected cases should be isolated in negative pressure rooms. Deisolation could be considered only after 2 negative respiratory samples. However, the time to laboratory test response lasts more than 48 hours thus leading to a difficult management of patients' flow. The logistic is complicated by the fact that according to national law, 1 parent should stay with the child. Considering the large number of patients referring to pediatric hospital because of acute respiratory infections in winter season, the strict adoption of WHO/ECDC criteria can lead to a congestion of our hospitals. CoVID-19 can occur in febrile children even without signs of respiratory failure. By merging WHO/ECDC and Chinese epidemiology, we have developed an algorithm as decision-making matrix to decide on the patients' disposition (Fig. 1).[1–4]

In conclusion, the pediatric emergency is more logistic than clinical. So, we urge you to plan local advice and follow your institutional and national guidelines.

Giovanna Chidini, MD
Department of Anesthesia
and Intensive Care
Fondazione IRCCS Cà Granda Ospedale
Maggiore Policlinico
Pediatric Intensive Care Unit
Milan, Italy

Cristina Villa, MD
Edoardo Calderini, MD
Department of Anesthesia
and Intensive Care
Fondazione IRCCS Cà Granda Ospedale
Maggiore Policlinico

Paola Marchisio, MD
Fondazione IRCCS Cà Granda Ospedale
Maggiore Policlinico
Milan, Italy

Daniele De Luca, MD, PhD
Pédiatrie et Réanimation Néonatale
– Pediatrics and Neonatal Critical Care,
Hôpital Antoine Béclère - "A. Béclère"
Medical center - GHU Paris Saclay, APHP

REFERENCES

1. World Health Organization. Coronavirus disease 2019 (COVID-19) situation report; data as reported by national authorities by 10AM CET. 03 March 2020.
2. Wei M, Yuan J, Liu Y, Fu T, Yu X, Zhang ZJ. Novel coronavirus infection in hospitalized infants under 1 year of age in China. *JAMA.* 2020.
3. Wu Z, McGoogan JM. Characteristics of and important lessons from the coronavirus disease 2019 (COVID-19) outbreak in China: summary of a report of 72 314 cases from the Chinese Center for Disease Control and Prevention. *JAMA.* 2020.
4. Sun K, Chen J, Viboud C. Early epidemiological analysis of the coronavirus disease 2019 outbreak based on crowdsourced data: a population-level observational study. *Lancet.* 2020.

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Address for correspondence: Giovanna Chidini, MD; E-mail: giovanna.chidini@policlinico.mi.it.

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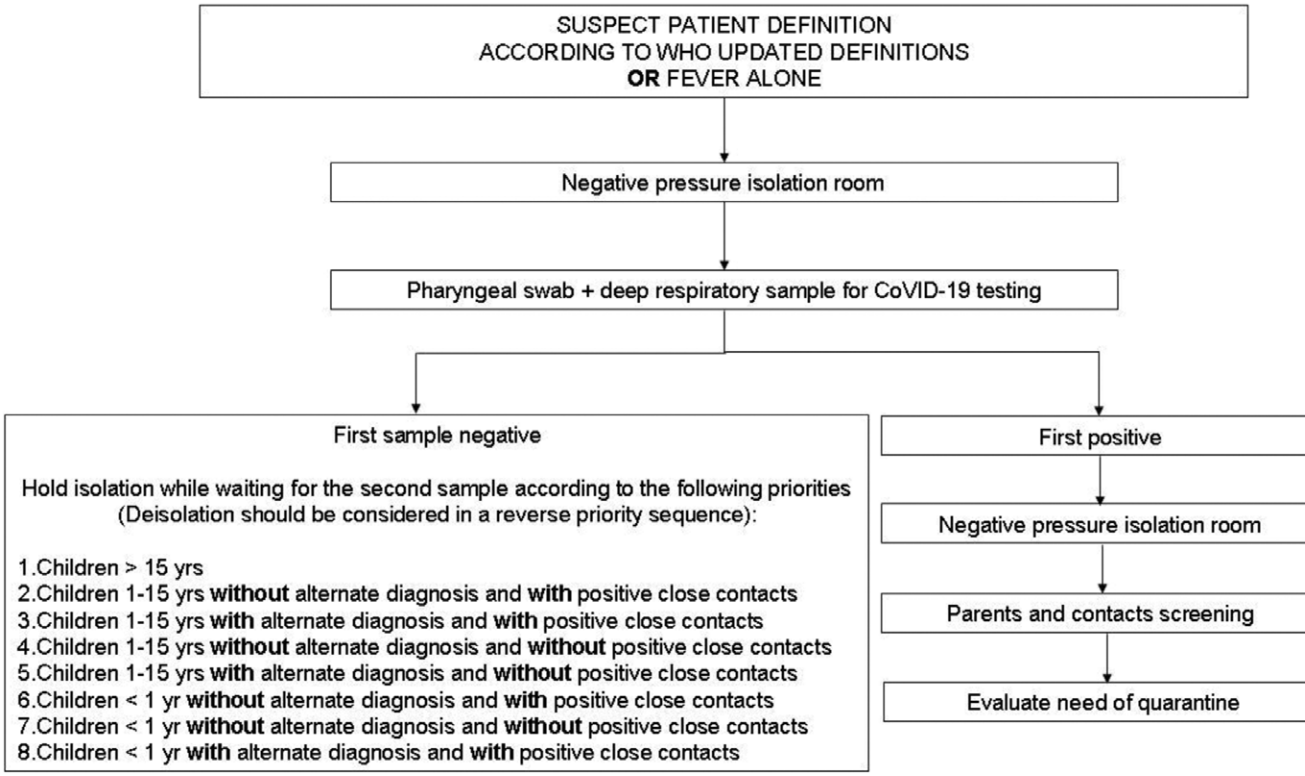

FIGURE 1. Flowchart representing our algorithm supporting decision making on the patients' disposition. The identification of a "suspect patients" depends on WHO-updated definitions or on the presence of fever alone as CoVID-19 in children can occur with very mild symptoms. A suspect case has to be put in isolation room and 2 respiratory samples have to be collected for laboratory testing. If the first sample is positive, then the patients have to be kept isolated. If the first sample is negative and patients' flow is under control, isolation has to be kept until a second sample excludes the infection. Otherwise isolation priority can be defined according to the matrix, giving higher priority to number 1, lowest priority to number 8. The same matrix can be used to deisolate "low-risk patients" in case of need of isolation for higher-risk patients.