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Effects of COVID-19 Lockdown on Epidemic Diseases of Childhood

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To the Editor,

COVID-19, caused by the virus SARS-CoV-2 (Severe Acute Respiratory Syndrome-Coronavirus-2), is a novel disease declared a pandemic by the World Health Organization

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on 11 March 2020. Almost 10 million people around the world have tested positive for Covid-19 and 500,000 subjects have died; in Italy there have been 238 275 confirmed cases and 34 610 deaths.¹⁻²

The spread of COVID-19 may be interrupted by early detection, isolation, prompt treatment, and the implementation of a robust system to trace contacts.³ Some governments have held it necessary to suspend the economic and social life of the country through lockdown measures. In these countries, a record number of children and youth are not attending school because of closures mandated by governments in an attempt to slow the spread of COVID-19.

The Italian COVID-19 epidemic may finally be slowing;⁴ it is time to analyze the effects caused by the long lockdown period. The measures adopted to contain the pandemic are having a significant economic impact, but they may have unexpected effects on the diffusion of other infectious diseases, particularly epidemic diseases of childhood. We retrospectively analyzed notifications of all the cases of infectious diseases that referred to the Emergency Department (ED) of a big hospital of Lombardy area (Northern Italy) in the period between 1 January 2018 and 30 June 2020. The number of first aid visits in the ED was about 100,000 per year; it has remained almost stable over the past three years. In particular, we analyzed the notifications of the common epidemic diseases of childhood: chickenpox, scarlet fever, pertussis, mumps, rubella, and measles. After analyzing the monthly data for each individual disease, it may be noticed that there is a marked decrease in cases reported to the ED in first semester of 2020 compared to the same period in 2019 and 2018 (Figure 1).

Analyzing the data on chickenpox, the notifications in the first semester of 2020 were 1/5 of those registered in the previous years. The notifications of measles decreased from eight in the first half of 2019 to zero in 2020. No cases of scarlet fever, rubella and pertussis were registered in 2020. Only a case of mumps was notified in the first semester of this year. The reduction of notified cases of epidemic diseases of childhood in that period could be explained by the forced lockdown and the closure of schools and public meeting places. In this context, the opportunities for contagion among children have significantly reduced, with favorable repercussions on the spread of common epidemic diseases. Furthermore, an intensive use of masks in general population could have reduced the inhalation of airborne respiratory droplets, which are the main vehicle for

spreading some of these diseases (e.g. chickenpox). Another explanation is that the cases registered in ED could underestimate the total cases. COVID-19 epidemic indeed led to a decreasing flow to the Emergency Department, due to a common fear of being infected during ED in-stay. Indeed, recent studies evidenced that in Italy the Covid-19 pandemic completely changed the pattern of ED referral, with a marked reduction of the accesses to the hospitals.⁵

In conclusion, further epidemiological and observational studies are needed to determine any link between the lockdown and an apparent decreased incidence of epidemic diseases of childhood. If a reduction in cases is confirmed, a resurgence of these diseases could happen in the next year. Indeed, it should be considered that the blocking of the vaccination campaign due to the lockdown could contribute to a greater spread of these diseases. Experts in public health and clinicians should stay alert in the event of a resurgence of epidemic diseases of childhood at the end of COVID-19 outbreak.

References

1. Belingheri M, Paladino ME, Riva MA. Beyond the assistance: additional exposure situations to COVID-19 for healthcare workers. *J Hosp Infect.* 2020;105(2):353.
2. Belingheri M, Paladino ME, Riva MA. Working schedule, sleep quality and susceptibility to COVID-19 in healthcare workers. *Clin Infect Dis.* 2020 <https://www.doi.org/10.1093/cid/ciaa499>
3. Belingheri M, Paladino ME, Riva MA. COVID-19: Health prevention and control in non-healthcare settings. *Occup Med (Lond).* 2020;70(2):82-83.
4. Marín-Hernández D, Schwartz RE, Nixon DF. Epidemiological evidence for association between higher influenza vaccine uptake in the elderly and lower COVID-19 deaths in Italy. *J Med Virol.* 2020 <https://www.doi.org/10.1002/jmv.26120>
5. Bellan M, Gavelli F, Hayden E, et al. Pattern of emergency department referral during the Covid-19 outbreak in Italy. *Panminerva Med.* 2020 <https://www.doi.org/10.23736/S0031-0808.20.04000-8>

FIGURE

Figure 1 – Epidemic Diseases of Childhood notified in Emergency Department in the first semester (2018-2020)

