

Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.





French Pediatric Societies Call for School to Stay Open amid the Coronavirus Disease 2019 Pandemic

Christèle Gras-Le Guen, MD^{1,2,3,4,5}, Véronique Hentgen, MD^{5,6}, François Dubos, MD^{5,7}, Fabienne Kochert, MD⁸, Martine Balençon, MD⁹, Corinne Levy, MD^{5,8,10,11}, Ido Somekh, MD¹², Eli Somekh, MD¹³, Pietro Ferrara, MD¹⁴, Massimo Pettoello-Mantovani, MD, PhD¹⁵, and Robert Cohen, MD^{5,8,10,11}

ith the onset of the coronavirus disease 2019 (COVID-19) pandemic in February 2020, the majority of European countries experienced 2 national lockdowns, which involved school closing, imposed by governments to control spread of the virus. In September 2020, on the reopening of the schools after the first lockdown, serious concerns were raised in Europe by scientific societies and governments on the possible role of schools in facilitating severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) circulation in the population. In response, European countries produced technical documents and guidelines on COVID-19, which included guidance for a safe reopening of schools and children's educational services. Different preventive strategies were adopted by European governments to control suspected and confirmed cases of infection in the school environment.^{1,2} In February 2021, based on available epidemiologic data, public authorities in Europe considered establishment of a third general lockdown of the population, as a preventive measure to combat a resurgence of the infection, mainly caused by variants of the original virus.³ An extended school closing was also considered by many European countries as a part of their third lockdown strategy.

The European Center for Disease Prevention and Control reported that during 2020 in the European Union countries and the United Kingdom, <5% of COVID-19 cases involved subjects under the age of 18 years and concluded that the role of children in viral transmission and its impact in epidemic expansion remains unclear.^{4,5} A systematic review on school closures for COVID-19 control found no conclusive evidence for a convincing effect of this measure in reducing viral transmission at population level.⁶ The evidence available to date suggests that children are more likely to contract COVID-19 from infected family members rather than from other children in school settings.^{2,6,7}

The aim of this commentary, authored by major French pediatric societies, in collaboration with the European Paediatric Association and other European pediatric centers, is to bring awareness to the importance of European children's health and well-being and to recommend keeping schools and other educational facilities open amid the COVID-19 pandemic. Child health is a state of physical, mental, intellec-

COVID-19 Coronavirus disease 2019 SARS-CoV-2 Severe acute respiratory syndrome coronavirus 2 tual, social, and emotional well-being and not merely the absence of disease or infirmity.^{8,9} Prolonged school closing exposes children to serious mental and social distress, possibly leading to serious long-term effects later in life. These consolidated notions prompted the authors to emphasize that indiscriminate school closing policies established by European countries during the COVID-19 pandemic is a questionable preventive measure not supported by sufficient evidence.⁴

Indirect Impact of COVID-19 on Children's Mental and Emotional Well-Being

Since February 2020, general pediatricians, child psychiatrists, and pediatric emergency departments in many European countries have observed a significant increase in outpatient and inpatient consultations and hospitalizations related to a variety of mental disorders including anxiety, depression, dark thoughts, and suicidal acts.¹⁰ They also report a significant increase of violence and abuse against children,^{11,12} especially among families that were abusive prior to the pandemic and in those experiencing stress and economic instability because of pandemic-related economic downturns.^{13,14} The epidemiologic profile of patients changed, as subjects who typically needed care for infectious illness were replaced by a large number of abused, depressed, anxious, and suicidal children.^{13,15}

COVID-19 infection rates in children are lower compared with adults, and mortality rates are significantly lower.¹⁶ In the US as of March 2021, children were 13.2% of the infected

The authors declare no conflicts of interest

293

 \checkmark

 \square

From the ¹Obstetrical, Perinatal and Pediatric Epidemiology Research Team, Epidemiology and Statistics Research Center, Université de Paris, INSERM, Paris, France; ³INSERM (CI 21413, Nantes, Inscrement, Nantes, France; ³Department of Pediatric Emergency Care, Nantes University Hospital, Nantes, France; ⁴French Pediatric Terregency Care, Nantes University Hospital, Nantes, France; ⁴Pediatric Infectious Diseases Group (GPIP), Crétell, France; ⁶Department General Pediatrics, Centre Hospitalier de Versailles, Le Chesnay, France; ⁷Pediatric Emergency and Infectious Diseases Unit, Université de Lille, CHU Lille, France; ⁸Association of French Primary Care Paediatrians (AFPA), Orleans, France; ⁹French Society of Medico-Legal Pediatrics, CHU Rennes, France; ¹⁰Association Clinique et Thérapeutique Infantile du Val de Marne, Créteil, France; ¹¹Paris Est University, IMRB-GRC GEMINI, Créteil, France; ¹²Department of Pediatric Hematology and Oncology, Schneider Children's Medical Center, Affiliated with Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel; ¹³Department of Pediatrics, Rwayanei Hayeshuah Medical Center, Bnei Brak, Affiliated with Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv, Israel; ¹⁴Italian Society of Pediatrics, Rome, Italy; and ¹⁵European Paediatric Association, Union of National European Paediatric

^{0022-3476/\$ -} see front matter. © 2021 Elsevier Inc. All rights reserved. https://doi.org/10.1016/j.jpeds.2021.04.001

population, 0.00%-0.19% of all COVID-19 deaths, and 10 states reported zero child deaths.¹⁷ Similar rates are reported in Europe by the European Center for Disease Prevention and Control.¹⁸ However, 1 year after the onset of the pandemic, although the infection and mortality rate caused by COVID-19 in children is contained, a large number of subjects <18 years old need medical assistance because of pandemic-related mental disorders and many of them report serious death wishes.¹⁹⁻²¹ Based on increasing epidemiologic data on mental distress caused by COVID-19 early in 2020, the United Kingdom Royal Society for Public Health raised concern about the negative effects of the pandemic on the mental and social health of children. The Royal Society for Public Health also expressed fear of a correlated parallel pandemic of domestic maltreatment seriously involving children, just as the first wave of COVID-19 pandemic was for adults.²² The persistence of the COVID-19 pandemic in Europe suggest an important role for schools, daycare centers, kindergartens, and socio-educational settings in maintaining adequate levels of well-being in the younger population.

French Pediatric Societies Call for Closing Schools as a Measure of Last Resort

Since May 2020, French pediatric societies rallied to keep schools, daycares, and kindergartens open, despite a persistent general uncertainty and political disagreement on how to combat the pandemic.^{5,7} The difficult task for the French societies was to dispute the general idea, based on the influenza model, that children could play an important role in SARS-CoV-2 dissemination. However, in support of the French societies' position, studies performed worldwide during school time reported that children <11 years old showed low rates of infection and that symptomatic forms were much less severe and contagious than in adults.^{5,6,23,24} In France, during the period between September 2020 and March 2021, the Ministry of Education closed a limited number of the total 61 500 public schools (range of school closing/ week 0.01%-0.25%) and 528 400 classes (range of class closing/week 0.001%-0.17%) because of infection episodes. During this period, 1 162 850 teachers and 12 400 000 students (6-18 years old) who were periodically tested at school showed lower rates of infection compared with the general population. COVID-19 mean positivity rate for teachers and students was 0.05% \pm 0.06% and 0.10% \pm 0.09%, respectively.²⁵

Pediatric societies in many European countries have called for schools to stay open based on local national data. In Sweden, where daycare centers and schools remained open without children wearing masks, teachers and children aged 7-16 years showed one-half the risk of severe COVID-19 compared with adults in other occupations²⁶ (0.43; 95% CI 0.28-0.68). A comparative study performed between March and May 2020 in Finland, where

schools were closed, and Sweden, where schools remained open, showed no difference in incidence of infection and hospitalizations or deaths in <20 years old subjects.²⁷ In Italy, reports indicate that schools do not act as an amplifier for transmission of SARS-CoV-2 and other settings where young people typically congregate were identified as a greater carrier of transmission.^{2,28}

Security fails without usability.²⁹ A study performed by the Italian society of pediatrics in schools, which involved a large number of students, teachers, and school employees, showed that in presence of clear and consistent preventive measures, including physical distancing, frequent hand hygiene, adequate ventilation, cleaning and disinfection, the infection rate was as low as 0.09% in the month of September, 1.11% in October, and 0.23% in November. In Israel, where schools closed between March and April 2020 and reopened gradually in May, analysis of national data showed that school reopening had a limited effect on viral infection rates in children and adults and that it was not a major contributor to the SARS-CoV-2-related mortality.^{29,30} The incidence of SARS-CoV-2 infections gradually increased in Israel following school reopening in all age groups, with a significant increase in incidence of infection in the population, particularly in adults testing positive for COVID-19 compared with children.^{29,30} Following summer vacation, in September 2020 the spread of SARS-CoV-2 escalated and the incidence rate of infection grew significantly causing a new countrywide lockdown including school closing. Schools reopened in Israel in November 2020 and current data show that as of March 2021, children age 0-9 years had the lowest increase in mean incidence rates and positivity rates of tests during school attendance periods. Particularly, subjects age 10-19 years showed no increase in incidence rates during September through November compared with adults.³¹ Reports also suggest that German children contract COVID-19 infections mainly outside school³² and similar data are reported in the US by the Centers for Disease Control and Prevention in the Morbidity and Mortality Weekly Report series.³³ The United Kingdom Scientific Advisory Group for Emergencies, which in July 2020 reported that few clusters of disease had been linked to school and that preventive measures needed to vary between primary and high school settings,³⁴ stated that schools have a moderate impact on transmission, with primary age children being at lower risk of infection than older children. The Scientific Advisory Group for Emergencies also reported that differences in school settings and structures and the type of mitigations adopted influenced the potential for transmission.³⁵ The debate about whether and how the virus spreads in schools and what conditions may allow for schools to safely and successfully reopen for in-person learning remains open in Europe and in the US. The views and rules established by the 50 European governments and their expert committees during the pandemic are different and uncoordinated.

Ш

 \mathbf{D}

Uncommon Sense: to Enable Schools to Open Safely and Remain Open by Adopting Consistent COVID-19 Prevention and Control Measures

Common sense is often uncommon.³⁶ To properly pursue their present and future life achievements, children must have full access to the benefits of in-person learning and key support school services. To keep schools open as safely and as soon as possible, and ensure that they stay open, is an important social challenge posed by COVID-19. Governments worldwide are engaged to safeguard the health and well-being of their future generations and avoid further social differences and disadvantages children from low-resourced communities may experience in the absence of in-person educational options. The emergence of more contagious SARS-CoV-2 variants is a matter of concern. However, children were found no more susceptible to these lineages than are adults,²³ thus, closing schools on the basis of incomplete information could have serious repercussions.²³ The French experience, similarly to that reported by the Centers for Disease Control and Prevention in the US, shows that schools that have consistently implemented preventive and mitigation strategies have been able to safely open for in-person education and remain open.^{23,37,38}

Conclusions

On March 19, 2021, the French government declared a new lockdown in large areas of the country until late April. However, based on available data and a careful costbenefits analysis, schools were excluded from the measure and remained opened. The European Paediatric Association³⁹ supported the call of French pediatric societies for schools to stay open amid the COVID-19 pandemic by careful development, planning, and adopting of adequate safety measures to be observed by teachers and students during school time.^{38,40} However, despite careful planning and vigilant implementation of essential elements of safe in-person procedures, under particular epidemiologic circumstances, school officials in consultation with the local public health departments may consider temporarily closing schools or parts of a school and limit in-person instruction. In such circumstances, schools should provide continuity of education through remote learning or athome activities.

To follow stringent safety guidelines, based on careful considerations of a variety of factors and established with an emphasis on ensuring the health and wellness of students, their families, teachers, and staff, may be complicated. However, it is possible to have convenience if insecurity is tolerated, but if security is considered a relevant objective to pursue, a community must be prepared for inconvenience.⁴¹

We are grateful to Angoulvant François, Basmaci Romain, Brehin Camille, De Pontual Loic, Dufour Véronique, Durrmeyer Xavier, Faye Albert, Gajdos Vincent, Gillet Yves, Grimprel Emmanuel, Haas Hervé, Hau Isabelle, Jeziorski Eric, Launay Elise, Lorrot Mathie, Magendie Christine, Minodier Philippe, Pinquier Didier, Raymond Josette, Romain Olivier, Toubiana Julie, Vie Le Sage François, and Weil-Olivier Catherine for their contribution to the conceptualization of the article and data collection. ■

Reprint requests: Corinne Levy, MD, Association Clinique et thérapeutique Infantile du Val de Marne, Créteil, France. E-mail: corinne.levy@activ-france.fr

References available at www.jpeds.com

 \blacktriangleleft

<u>
</u>

References

- Mensaha AA, Sinnathambya M, Zaidi A, CoughlanaL, Simmons Ra, Ismail SA, et al. SARS-CoV-2 infections in children following the full re-opening of schools and the impact of national lockdown: prospective, national observational cohort surveillance, July-December 2020, England. 2021. J Infect 2021;24. Accessed November 3, 2021. https://www.journalofinfection.com/action/showPdf?pii=S0163-4453% 2821%2900093-1
- Villani A, Coltella L, Ranno S, Bianchi di Castelbianco F, Murru PM, Sonnino R, et al. School in Italy: a safe place for children and adolescents. Ital J Pediatr 2021;47:23. https://doi.org/10.1186/s13052-021-00978-w. Accessed November 3, 2021. https://ijponline.biomedcentral.com/ track/pdf/10.1186/s13052-021-00978-w.pdf
- 3. Cyranoski D. Alarming COVID variants show vital role of genomic surveillance. Nature 2021;589:337-8.
- 4. European Centre for Disease Prevention and Control. COVID-19 in children and the role of school settings in COVID-19 transmission. Stockholm: ECDC; 2020. Accessed November 3, 2021. https://www.ecdc.europa.eu/en/publications-data/children-and-school-settings-covid-19-transmission
- 5. Davies NG, Klepac P, Liu Y, Prem K, Jit M, Eggo RM. Age-dependent effects in the transmission and control of COVID-19 epidemics. Nat Med 2020;26:1205-11.
- 6. Viner RM, Mytton OT, Bonell C, Melendez-Torres GJ, Ward J, Hudson L, et al. Susceptibility to SARS-CoV-2 infection among children and adolescents compared with adults: a systematic review and metaanalysis. JAMA Pediatr 2021;175:143-56.
- Esposito S, Cotugno N, Principi N. Comprehensive and safe school strategy during COVID-19 pandemic. Ital J Pediatr 2021;47:6. Accessed November 3, 2021. https://ijponline.biomedcentral.com/track/pdf/10. 1186/s13052-021-00960-6.pdf
- Ferrara P, Corsello G, Ianniello F, Sbordone A, Ehrich J, Giardino I, et al. Internet addiction: starting the debate on health and well-being of children overexposed to digital media. J Pediatr 2017;191:280-1.e1.
- World Health Organization. Maternal, newborn, child and adolescent health. Accessed February 22, 2019. https://www.who.int/maternal_ child_adolescent/child/en/
- Ciucci M. European Parlament. Policy Department for Economic, Scientific and Quality of Life Policies. Mental health during the COVID-19 pandemic. Accessed March 15, 2021. https://www.europarl.europa.eu/ RegData/etudes/BRIE/2020/658213/IPOL_BRI(2020)658213_EN.pdf
- World Health Organization. WHO 2020 global status report on preventing violence against children. Accessed March 13, 2021. https://www. unicef.org/media/70731/file/Global-status-report-on-preventing-violenceagainst-children-2020.pdf
- 12. Kuehn BM. Surge in child abuse, harm during COVID-19 pandemic reported. JAMA 2020;324:621.
- **13.** Amerio A, Aguglia A, Odone A, Gianfredi V, Serafini G, Signorelli C, et al. Covid-19 pandemic impact on mental health of vulnerable populations. Acta Biomed 2020;91:95-6.
- 14. Lawson M, Piel MH, Simon M. Child maltreatment during the COVID-19 pandemic: consequences of parental job loss on psychological and physical abuse towards children. Child Abuse Negl 2020;110:104709.
- Pereda N, Díaz-Faes DA. Family violence against children in the wake of COVID-19 pandemic: a review of current perspectives and risk factors. Child Adolesc Psychiatry Ment Health 2020;14:40.
- 16. Koh HK, Geller AC, VanderWeele TJ. Deaths From COVID-19. JAMA 2021;325:133-4.
- American Academy of Pediatrics. Critical Updates on COVID-19. Children and COVID-19: State-Level Data Report. Accessed March 13, 2021. https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/ children-and-covid-19-state-level-data-report/
- European Center for diseases Prevention and Control (ECDPC). COVID-19 country overviews. Accessed March 13, 2021. https://www.

wsj.com/articles/is-it-safe-to-reopen-schools-europe-is-about-to-find-out-11589278169

- Caron F, Plancq MC, Tourneux P, Gouron R, Klein C. Was child abuse underdetected during the COVID-19 lockdown? Arch Pediatr 2020;27: 399-400.
- Green P. Risks to children and young people during covid-19 pandemic. BMJ 2020;369:m1669.
- 21. Sapara A, Shalaby R, Osiogo F, Hrabok M, Gusnowski A, Vuong W, et al. COVID-19 pandemic: demographic and clinical correlates of passive death wish and thoughts of self-harm among Canadians [e-pu, b ahead of print]. Int J Psychiatry Clin Pract. Accessed April 28, 2021. https://doi. org/10.1080/13651501.2021.1881127
- Adams C. Royal Society for Public Health, Institute of Health Visiting. Is a secondary pandemic on its way? Accessed March 13, 2021. https://ihv. org.uk/news-and-views/voices/is-a-secondary-pandemic-on-its-way/
- Lewis D. What new COVID variants mean for schools is not yet clear. Nature 2021;589:503.
- 24. Li X, Xu W, Dozier M, He Y, Kirolos A, Theodoratou E. The role of children in transmission of SARS-CoV-2: a rapid review. J Glob Health 2020;10:011101.
- 25. French Ministry of Education. Covid19: opening of Schools, practical modalities and health protocol. Accessed March 15, 2021. https://www.education.gouv.fr/covid19-points-de-situation-306444
- Ludvigsson JF, Engerstrom L, Nordenhall C, Larsson E. Open schools, Covid-19, and child and teacher morbidity in Sweden. N Engl J Med 2021;384:669-71.
- UK Government. SAGE Report: update on children, schools and transmission. Accessed March 15, 2021. https://assets.publishing.service.gov. uk/government/uploads/system/uploads/attachment_data/file/935125/ tfc-covid-19-children-transmission-s0860-041120.pdf
- 28. Cento V, Alteri C, Merli M, Di Ruscio F, Tartaglione L, Rossotti R, et al. Effectiveness of infection-containment measures on SARS-CoV-2 seroprevalence and circulation from May to July 2020, in Milan, Italy. PLoS One 2020;15:e0242765.
- 29. Villani A, Bozzola E, Siani P, Corsello G. The Italian pediatric society recommendations on children and adolescents extra-domestic activities during the SARS-CoV 2 emergency phase 2. Ital J Pediatr 2020;46:62.
- Somekh I, Shohat T, Boker LK, Simões EAF, Somekh E. Reopening schools and the dynamics of SARS-CoV-2 infections in Israel: a nationwide study [e-pub ahead of print]. *Clin Infect Dis.* Accessed April 28, 2021. https://doi.org/10.1093/cid/ciab035.#
- Ministry of Health of Israel. Corona national campaign information and knowledge center. Accessed March 3, 2021. https://www.gov.il/he/ departments/corona-national-information-and-knowledge-center
- Most Children Caught COVID-19 Outside School: German Data Medscape. Accessed November 19, 2020. https://www.medscape.com/ viewarticle/941318
- 33. Hobbs CV, Martin LM, Kim SS, Kirmse BM, Haynie L, McGraw S, et al. Factors associated with positive SARS-CoV-2 test results in outpatient health facilities and emergency departments among children and adolescents aged <18 years—Mississippi, September-November 2020. MMWR Morb Mortal Wkly Rep 2020;69:1925-9.
- UK Parliament, Post. COVID-19, children and schools. Accessed March 14, 2021. https://post.parliament.uk/covid-19-children-and-schools/
- United Kingdom Government. SAGE 80 minutes (COVID-19) response. Accessed March 14, 2021. https://www.gov.uk/government/publications/ sage-80-minutes-coronavirus-covid-19-response-11-february-2021/sage-80-minutes-coronavirus-covid-19-response-11-february-2021
- 36. Lampson B. Usable security: how to get it. Accessed March 17, 2021. https://www.researchgate.net/publication/220425665_Privacy_and_ Security_Usable_Security_How_to_Get_It
- 37. Ismail SA, Saliba V, Bernal JL, Ramsay ME, Ladhani SN. SARS-CoV-2 infection and transmission in educational settings: a prospective, cross-sectional analysis of infection clusters and outbreaks in England. Lancet Infect Dis 2020. Accessed March 14, 2021. https://doi.org/10. 1016/S1473-3099(20)30882-3externalicon

- COVID-19 and Shools, suggestions of the French Pediatric Society. Accessed March 14, 2021. https://www.sfpediatrie.com/files/medias/ documents/propositions_sfp_pathologies_chroniques.pdf
- **39.** Namazova-Baranova L, Carrasco-Sanz A, Vural M, Huss G, Mestrovic J, Barak S, et al. European pediatricians: speaking with one voice to advocate for children and their health. J Pediatr 2019;211:227-8.
- **40.** Pettoello-Mantovani M, Pop TL, Mestrovic J, Ferrara P, Giardino I, Carrasco-Sanz A, et al. Fostering resilience in children: the essential role of healthcare professionals and families. J Pediatr 2019;205:298-9.e1.
- 41. ZeroDay. Security fails without usability. USAF General Benjamin W Chidlaw quotes. Accessed March 18, 2021. https://www.zdnet.com/ article/security-fails-without-usability%20/

 \triangleleft