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COVID-19 CORRESPONDENCE

Mandatory preoperative SARS-CoV-2 infection screening policies for paediatric surgery

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Editor—During the first wave of the coronavirus 2019 (COVID-19) pandemic in France, substantial hospital resources were allocated to the clinical care of patients presenting with severe and critical severe acute respiratory syndrome-related coronavirus-2 (SARS-CoV-2) infection to the detriment of other clinical priorities.¹ Such policy is only sustainable for a short period, and unsurprisingly most health systems have increased treatment of non-emergent, non-COVID-19 patients during subsequent waves.² One of the crucial questions facing physicians and healthcare policy managers during this pandemic is whether to use mandatory SARS-CoV-2 testing for all patients admitted to hospital. This question is particularly pertinent in children, given higher asymptomatic disease rates and increased difficulties when performing nasopharyngeal swab testing.^{3–5} French guidelines require physicians to test all hospitalised paediatric patients before surgery.⁴ However, the relevance of mandatory preoperative screening is debatable, and particularly so during periods of reduced community disease spread.

The aim of the current study was to describe rates of positive SARS-CoV-2 reverse transcription–polymerase chain reaction (RT–PCR) tests and characteristics of infected children in a single paediatric surgical institution (in the Ile-De-France region of Paris) before and during the second wave of COVID-19 disease in France, the latter defined as beginning October 1, 2020 (epidemiologic week #40) according to the

French Ministry of Health: <https://www.gouvernement.fr/info-coronavirus/carte-et-donnees> (Fig. 1). The study was approved by our Institutional Review Board (Comité d'évaluation de l'éthique de la recherche de l'hôpital Robert Debré #2020-075 on March 21, 2020). With the exception of emergency surgical patient testing, most RT–PCR tests were performed outside our facility; as a consequence, the RT–PCR kits used were not standardised. Guidelines recommended that patients presenting for emergent surgery were tested 2 h before surgery for the period August 30 through October 30 only, and that patients presenting for scheduled surgery were tested 48 h before surgery throughout the study period.⁴ Clinical SARS-CoV-2 infection risk assessments were performed before all anaesthetics using a specific checklist (Supplementary File 1). In truly emergent paediatric surgery such as neonatal laparotomies, testicular torsion, button battery ingestion retrieval, etc., neither anaesthesia nor procedure was delayed while waiting for RT–PCR results.

During the study period, 2692 paediatric patients were anaesthetised (Supplementary File 2); RT–PCR results were recorded for 2148 patients (Supplementary File 2). The remaining untested 544 patients were emergency surgical patients between May 1, 2020 and August 29, 2020, when testing for emergency patients was not mandatory. Timeline curves of weekly regional (Ile-De-France region: data.gouv.fr) and local (cohort) rate of positive RT–PCR results are displayed for the study period in Figure 1 (rate=positive RT–PCR

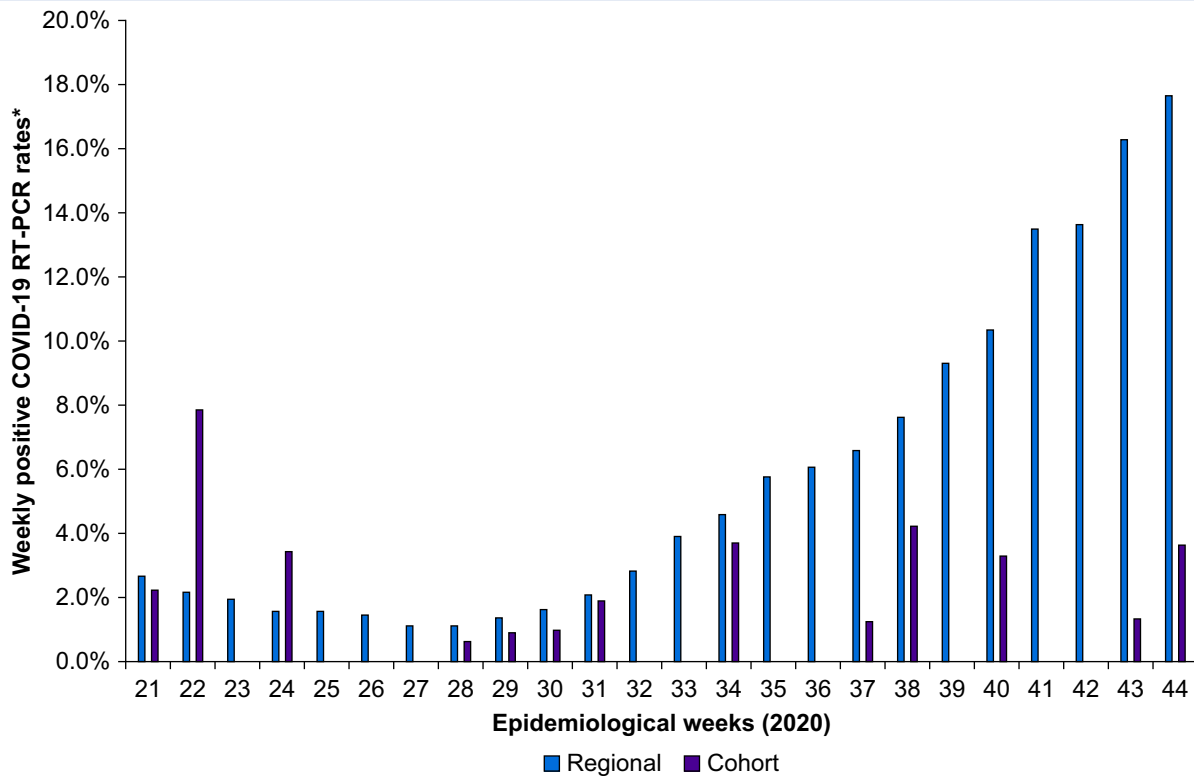


Fig 1. Rate of weekly positive reverse transcription—polymerase chain reaction (RT-PCR) testing for severe acute respiratory syndrome-related coronavirus-2 (SARS-CoV-2) (positive RT-PCR testing/total of RT-PCR testing performed) in the Ile-De-France region and in the cohort population during the study period. Regional data were lacking for the epidemiological weeks 19 and 20. COVID-19, coronavirus disease 2019.

testing/total of RT-PCR testing). The fit of the two weekly case curves was inconsistent both during periods of reduced (May to September) and increased (October) community disease transmission. Data for patient characteristics, type of surgery, COVID-19 signs and symptoms, and known previous SARS-CoV-2 contact within the previous 2 weeks were prospectively obtained for 1345 patients. Available patient characteristics are displayed in [Supplementary File 3](#). Overall, 29 of 2148 patients tested RT-PCR positive {1.4% (95% confidence interval [CI]: 0.8–1.8), N=2148}. Of these, 20 were asymptomatic with no reported SARS-CoV-2 contact. Asymptomatic patients represented 69% (95% CI: 51.8–86.1%) of RT-PCR positive patients and 0.9% (95% CI: 0.5–1.3%) of RT-PCR screened patients. The other nine patients were symptomatic, had a known SARS-CoV-2 contact, or both ([Supplementary File 4](#)).

When comparing the time periods of the decline of the first wave (May 1, 2020 to September 30, 2020) and the beginning of the second wave (from October 1, 2020 to October 30, 2020), positive SARS-CoV-2 test results increased from 1.2% (95% CI: 0.7–2.7%) to 2% (95% CI: 0.6–3.5%) ($P=0.14$). More importantly, all patients detected during the second wave were asymptomatic (self-reported) and denied having known COVID-19+ contact. Details of clinical signs and symptoms, reported contacts and RT-PCR results for both periods are displayed in [Supplementary File 4](#).

Our results are similar to the previous cohort⁶ performed in three children's hospitals in the USA (0.93% of positive RT-PCR screening vs 1.2% in our cohort). The percentage of asymptomatic patients, without identified SARS-CoV-2 contact, or both in our cohort (69% [95% CI: 51.8–86.1%]) was similar to that found in the same previous cohorts⁶ (71% [95% CI: 64–78%]). This highlights similar trends in different continents. As shown in other studies,^{4,5} PCR-positive paediatric patients⁵ were likely to be asymptomatic and deny contact with COVID-19+ persons. The percentage of SARS-CoV-2 PCR-positive results in our cohort did tend to increase with increased community disease transmission. However, this increase was inconsistent over time, meaning that the screening policy should not have been adjusted according to national epidemiologic trends ([Fig 1](#)). Therefore, our results support continuing the policy of mandatory preoperative paediatric patient screening before anaesthesia during any community transmission of SARS-CoV-2.

Once the local decision has been made to use mandatory RT-PCR preoperative screening, it must be kept in mind that SARS-CoV-2 RT-PCR testing sensitivity is reported to be relatively low, at 70–90%. As a result, false-negatives should be expected and preoperative clinical screening for COVID-19 should be routinely performed. Lastly, even if promising recent vaccine trial results lead to worldwide durable

immunity, preventive and social strategies should be used in a timely fashion to reduce community spread, morbidity, and mortality,^{7,8} and to protect the medical and nursing community at large.

Declarations of interest

The authors declare that they have no conflicts of interest.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.bja.2021.01.007>.

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Trends in personal protective equipment use by clinicians performing airway procedures for patients with coronavirus disease 2019 in the USA from the intubateCOVID registry

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