

Emergency department utilization by children with general surgical conditions during the COVID-19 pandemic

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Dear Editor

Recent literature has reported a decrease in healthcare-seeking behaviours by adults with surgical conditions during the COVID-19 pandemic¹. Although children appear to have a lower incidence of COVID-19 and often milder illness², delays in seeking surgical care may cause important collateral damage³. This report describes changes in emergency department utilization by children with general surgical conditions during the first 2 months of the COVID-19 pandemic (13 March to 13 May 2020)

compared with the same period the previous year (before pandemic; 13 March to 13 May 2019). Patients presenting to the authors' tertiary paediatric hospital emergency department were screened, and those with general surgical conditions (based on American Pediatric Surgical Association definition)⁴ were included in the analysis. Follow-up data were collected for 3 months. Adverse outcomes were defined as a composite of disease recurrence and/or complications. The study findings were reported in terms of percentage difference in variables during the pandemic compared with the interval before the pandemic.

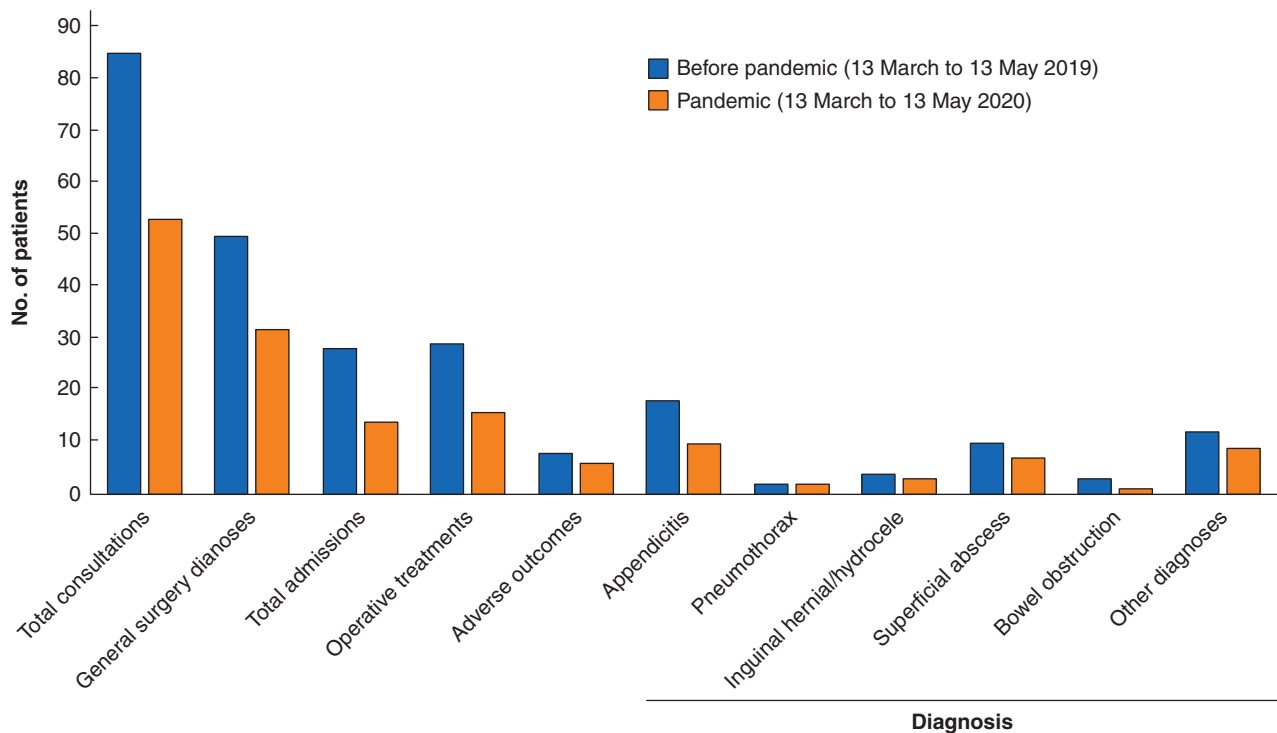


Fig. 1 Emergency department utilization by children with general surgical conditions

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There were 85 general surgical consultations in the period before the pandemic compared with 53 during the pandemic (38 per cent reduction) (Fig. 1). Before the pandemic, 50 patients had a confirmed general surgical diagnosis compared with 32 during the pandemic (36 per cent reduction). The most common diagnoses were appendicitis (18 versus 10 patients; 44 per cent reduction), superficial abscesses (10 versus 7; 30 per cent reduction) and inguinal pathologies (4 versus 3; 25 per cent reduction). The overall rates of conditions managed conservatively were 44 per cent in the period before the pandemic and 50 per cent during the pandemic. Notably, for acute appendicitis, no children were managed conservatively in either period.

There was a 50 per cent decrease in general surgery admissions from the emergency department during the pandemic (28 versus 14). The duration of stay in the emergency department was also shorter during the pandemic (mean(s.d.) 612(386) versus 329(291) min; 46 per cent reduction). Similarly, there was a decrease in the interval between emergency department physician's assessment and general surgery team involvement (283(295) versus 183(148) min; 35 per cent reduction). Three-month adverse outcomes occurred in eight patients before the pandemic (15 per cent) and six during the pandemic (18 per cent). The most common adverse outcomes were intra-abdominal abscess (4 of 8 before pandemic versus 1 of 6 during pandemic). There was only one ICU admission, which occurred during the period before the pandemic; the patient died from sepsis after a negative exploratory laparotomy owing to suspicion of Hirschsprung's disease. Only one patient tested positive for COVID-19; this patient was discharged home from the emergency department and transferred to a designated COVID-19 paediatric centre for treatment.

These findings suggest a decrease in the health-seeking behaviour of children with general surgical conditions in early stages of the COVID-19 pandemic. This corroborates trends seen in adult patients¹. The reduction in duration of stay in the emergency department could in part be explained by a decreased non-COVID patient load in the emergency department and faster involvement of the general surgery team in patient management⁵. Moreover, the authors were successful in

upholding their institutional standard of operative management for appendicitis, with no significant increase in 3-month complication rates. This was made possible with timely implementation of institutional operative safety protocols centred around universal preoperative COVID-19 testing. This experience supports the feasibility and efficacy of timely emergency care for children with general surgical conditions during the pandemic.

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References

1. Del Pozo EP, Aparicio-Sánchez D, Ramírez FH, Ciuró FP, Muñoz-Cruzado VD, Arteaga AS et al. A prospective cohort study of the impact of covid19 world pandemic on the management of emergency surgical pathology. *Br J Surg* 2020;**107**:e463–e464
2. Lazzarini M, Barbi E, Apicella A, Marchetti F, Cardinale F, Trobia G. Delayed access or provision of care in Italy resulting from fear of COVID-19. *Lancet Child Adolesc Health* 2020;**4**: e10–e11
3. Lin EE, Blumberg TJ, Adler AC, Fazal FZ, Talwar D, Ellingsen K et al. Incidence of COVID-19 in pediatric surgical patients among 3 US children's hospitals. *JAMA Surg* 2020;**155**:775–777
4. American Pediatric Surgical Association. Lists of Conditions [internet]. American Pediatric Surgical Association; 2020 [cited 2020 Oct 10]. Available from: <https://eapsa.org/parents/learn-about-a-condition>
5. Kvasnovsky CL, Shi Y, Rich BS, Glick RD, Soffer SZ, Lipskar AM et al. Limiting hospital resources for acute appendicitis in children: lessons learned from the US epicenter of the COVID-19 pandemic. *J Pediatr Surg* 2020 DOI:10.1016/j.jpedsurg.2020.06.024 [Epub ahead of print]