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Effect of personal protective equipment on perioperative anxiety in children and young people

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Editor—We would like to report on our work investigating the impact of full personal protective equipment (PPE) on perioperative anxiety on children and young people undergoing surgery during the coronavirus disease 2019 (COVID-19) pandemic. Perioperative anxiety in paediatrics occurs in 50–75% of patients and is associated with negative outcomes postoperatively including increased pain, nausea and vomiting, prolonged recovery, and dysfunctional behaviours in up to 60% of patients: difficulty sleeping, nightmares, eating disorders, and nocturnal enuresis.¹ The mental health of children and adolescents has already been negatively affected by the pandemic,² and we hypothesised that PPE could lead to increased anxiety and worsen outcomes in this already vulnerable population. Our policy is to wear full PPE for aerosol-generating procedures regardless of COVID-19 status because of high regional prevalence. We performed a service evaluation to investigate the impact of PPE on perioperative fear and anxiety.

A prospective observational cohort study of consecutive cases was performed by six paediatric anaesthetists at Alder

Hey Children’s Hospital (Liverpool, UK) with a postoperative survey of families presenting for day-surgery to determine their perceptions about PPE. Our single-centre study is part of wider multicentre work by the Procedure Induced Anxiety Network UK (PIANo-UK). The data collection period lasted from June 22, 2020 to July 5, 2020. Patients <24 months, for critical care, or with acute reduction in Glasgow Coma Scale (GCS) were excluded. Validated tools used for evaluation included the Induction Compliance Checklist (ICC), which scored anxiety behaviour in the anaesthetic room. This project was registered prospectively with the local quality and governance committee (registration number 6086). Consent was obtained as part of the patient survey. Data were analysed with Google Sheets (Google LLC, Mountain View, CA, USA).

The anaesthetist survey included 63 cases meeting inclusion criteria of 86 screened cases. Patient characteristics were as follows: patients had a median age of 9 (inter-quartile range [IQR], 1–12) yr, 38/63 (60%) male and 25/63 (40%) female, 60/63 (95%) ASA physical status 1–2, and 3/63 (5%) ASA physical status 3–4. There were 22/63 urgent or emergency procedures

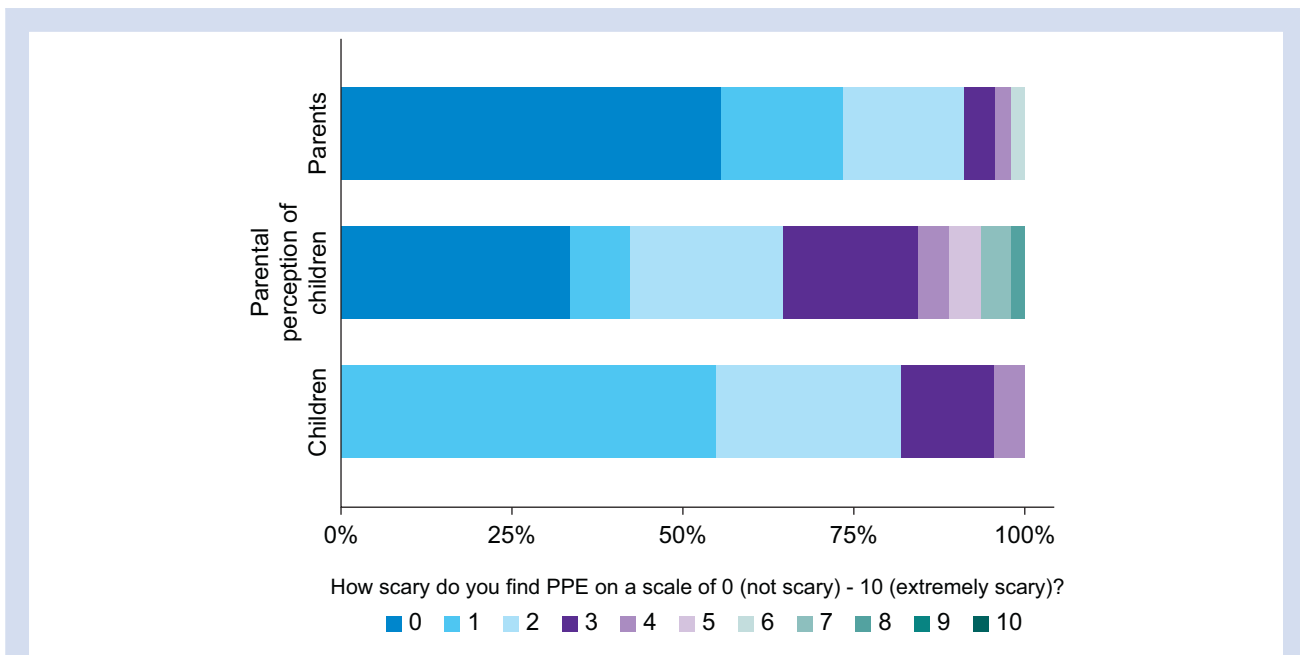


Fig 1. Perceptions of how scary patients and children find staff wearing personal protective equipment (PPE).

and 41/63 elective procedures. The median ICC score was 1 (IQR, 0–1), with a score of 0 indicating perfect induction in 31/63 (49%). The median ICC score if a sedative premedication was given was 1 (IQR, 0–1), showing no significant difference in ICC with premedication ($P=0.38$). Heterogeneous PPE was worn in the anaesthetic room: filtering face piece 3 (FFP3) masks, half-face respirators, and powered air-purifying respirators. Distraction was used in 27/63 (60%) cases.

The patient and family survey comprised 45 responses, with 23/45 (50%) including responses from patients older than 5 yr who were willing and able to answer. In 29/45 (64%) families, they reported their child was scared or anxious as a concern about coming into hospital; 42/45 families expected staff to be wearing PPE; and 15/23 (65%) of children selected the words happy and safe as descriptors of how PPE made them feel, with no children selecting anxious, nervous, or scared. Parents overestimated a child's fear of PPE as shown in Figure 1.

Although we know that both perioperative anxiety and COVID-19 impact the mental health of children and young people, as yet we do not have a good understanding of how these intersect. Strategies to support child mental health for parents have been outlined during the pandemic as a whole³; however, there is a lack of information about coming into hospital during the pandemic. Our service evaluation suggests that PPE does not contribute to perioperative anxiety in children and adolescents. Most patients experienced extremely low levels of anxiety at induction (median ICC score, 1/8). PPE provided reassurance and increased a child's confidence in anaesthesia: 65% reported staff PPE made them feel safe and happy, and 0% reported being scared by PPE. Evidence suggests that children desire information about the perioperative process⁴; we found that 93% were expecting to see staff in PPE. We propose that provision of detailed information about what PPE children should expect will empower them and is related to the low levels of anxiety seen. At the time of our work, as elective surgery resumed after the first COVID-19 wave, the wearing of face masks was not mandatory in public places; however, PPE was widely depicted throughout the media, and this will have impacted the expectations of children and young people about seeing staff wearing PPE.

The use of heterogeneous PPE by different staff members precludes further analysis of whether specific types of PPE elicited different responses from patients. Mask-wearing has been highlighted as hindering communication in paediatric anaesthesia.⁵ In our experience, although powered air-purifying respirators allow patients to visualise staff faces without obstruction, improving visual cues, this benefit is pitted against the background noise of the respirator creating communication difficulties. This is more keenly felt with anxious patients who might be softly spoken. We remain concerned that the softer skills associated with improving the patient experience are hindered by the requirement for full PPE.

Distraction techniques remain a mainstay of paediatric anaesthetic practice, used in 60% of cases. Psychological

interventions including distraction have been consistently shown to be effective.⁶ In our pre-COVID practice, bubble blowing was the most commonly used distraction technique in younger patients, which we now achieve using a spare powered air-purifying respirator blower unit. Other options for distraction remain available including use of videos and interactive games, which have been shown to be beneficial.⁷

Our work is limited by the absence of pre-COVID-19 data or a control group; however, it highlights a probable psychological shift to a 'new normal' that warrants further study, and is the focus of extensive work by PIANO-UK. PPE will likely remain commonplace in anaesthesia even after the pandemic, so this is an issue that remains pertinent for our future practice. We conclude that contrary to our expectations at the start of the pandemic, full PPE does not generate anxiety, and in fact children most frequently report it making them feel happy and safe. This is supported by their behaviour during induction of anaesthesia.

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Declarations of interest

The authors declare that they have no conflicts of interest.

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