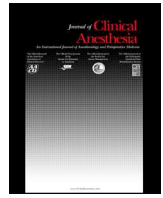




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Correspondence

Managing the post-COVID-19 pediatric surgical surge – Opportunities and challenges



Dear Editors,

We read with interest the article by Dexter F et al. on strategies for responding to the stresses COVID-19 has placed on operating room management [1] and agree that many of the principles outlined can also be used in the non-ambulatory surgery setting. We are concerned however by the recommendation to consider expanding surgical hours, particularly for pediatric patients. A majority of major children's hospitals have expanded operating room time for elective procedures to include evenings and Saturday (COVID-19 Update from the Pediatric Anesthesia Leadership Council (PALC). Society for Pediatric Anesthesia listserv. June 13, 2020, accessed June 19, 2020). While the authors do recommend expanding only until 7 pm, we are concerned that this would result in cases going into the “off-hours”, namely nights and the weekends.

The authors demonstrated that simply using average case length to book until 7 pm would result in half going past 7 pm. They have previously shown [2] how average and standard deviation for case times could be used to avoid off-hours anesthesia and recommended case completion by 7 pm.

Off-hours anesthesia in pediatrics is associated with an increased risk of perioperative complications including cardiac arrest and death [3]. Specifically, mortality more than doubled for pediatric anesthesia after 7 pm and/or on weekends. This risk was independent of other known risk factors such as age, American Society of Anesthesiologists Physical Status (ASA PS), ASA emergency status and cardiac surgery. While the exact causes remain unclear, it may be related to circadian changes in alertness or decreased staffing levels. Thus, use of off-hours for elective anesthesia should be approached with caution.

Careful optimization can allow for the safest possible use of off-hours or selecting cases for later in the day that may run into the off-hours. This begins with careful screening by an anesthesiologist. Their risk assessment is invaluable, as reflected by the high predictive value of the ASA PS [3,4]. Such scrutiny will enable prioritization of higher

risk patients and procedures for regular hours when resources are maximal. Elective off-hours procedures should be relegated to patients at low risk of intraoperative and early postoperative complications. The threshold for same-day cancellations due to upper respiratory infections and other newly identified risk factors may need to be re-evaluated. Importantly, with the concern for asymptomatic carriers, institutional and national guidelines must be implemented to test as many patients as possible prior to surgery, thereby protecting frontline providers and conserving personal protective equipment.

Much like the decision of when to lift social distancing restrictions, the specifics of local conditions are of paramount importance. Matching procedural and patient complexity to resource availability should help reduce the risk of adverse outcomes due to “failure to rescue.” Provision of backup resources such as emergency rescue teams on standby should be considered to ensure safe care of children undergoing procedures after hours particularly in remote or non-hospital settings. With that said, the presence of emergency resources should not create complacency when choosing patients and procedures appropriate for off hours. Local guidelines should incorporate an analysis of available resources coupled with evaluating factors that predict adverse events and attempt to perform those procedures in patients deemed to be at increased risk during regular hours (Table 1).

Mitigating risk and minimizing delay are a careful balancing act, and will require systems level planning with careful allocation of resources.

All authors contributed to the writing of this article and declare no competing interests.

Declaration of competing interest

The authors declare no conflicts of interest.

Table 1

Risk factors for adverse events in pediatric anesthesia.

Age	Younger patients are higher risk, with < 6 mo being especially high risk [3,4]
ASA PS	ASA > 2 patients are higher risk [3,4]
ASA E	Emergency surgery is high risk. Consider maintaining capacity to do such surgeries in the daytime so they are not pushed to the off hours [3,4].
Cardiac	Cardiac surgery and/or congenital heart disease patients are at higher risk [5].
Pediatric specialists	Pediatric fellowship training and specialization (> 150 days/year pediatrics) reduce the risk [6,7].

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