ORIGINAL ARTICLE

The Child Induction Behavioral Assessment Tool: A Tool to Facilitate the Electronic Documentation of Behavioral Responses to Anesthesia Inductions

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Purpose: *The purpose of this study was to develop and implement an electronic tool for documenting pediatric patients' behavioral responses to anesthesia induction.*
Design: *Quality improvement methodology was used in the tool development and implementation.*
Methods: *The Child Induction Behavioral Assessment (CIBA) tool was developed based upon existing validated tools and through discussions with content experts and key stakeholders. Staff usage of the tool was monitored and the clinical utility of the tool was assessed.*
Findings: *The CIBA tool facilitated frequent documentation of behavioral responses to inductions. The majority of clinicians reported that they found the prior CIBA ratings useful when developing induction plans for returning patients.*
Conclusions: *Electronic documentation using the CIBA tool may provide useful information for optimizing induction plans for returning patients. Future research is needed to directly test the CIBA tool's validity.*

Keywords: *anesthesia, child behavior, electronic health records, pediatrics.*

PEDIATRIC PATIENTS OFTEN EXPERIENCE anxiety during the induction of anesthesia. Common stressors faced during anesthesia inductions include separation from family, fear of bodily harm, loss of control, placement of an intravenous (IV) line, and inhalation of anesthesia gas

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Conflicts of interest: None to report.

Ethical considerations: The study was reviewed by the hospital's institutional review board. This study was considered "not human subject research," as there was no direct interaction or intervention with patients and no identifiable protected health information was collected.

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from a mask. Research has consistently demonstrated that high preoperative anxiety in children is associated with negative postoperative outcomes such as emergence delirium, separation anxiety, tantrums, and sleep disturbances.[1-4] In one research study, maladaptive postoperative behaviors persisted for 6 months in 20% of patients and up to a year in 7% of the patients.[2] With the potential to have long-lasting effects on patient behavior, it is important to attempt to minimize patient anxiety during anesthesia inductions. Minimizing patient anxiety is also important because when patients are highly anxious they are more likely to experience combative behaviors during inductions such as kicking, flailing, and pushing staff or equipment.[5] Patient safety is the most important consideration when formulating an induction plan, but there are a number of interventions that can potentially be used to decrease patient anxiety during inductions. These interventions may include parental presence at induction, anxiolytic premedication, behavioral interventions, and modifying the induction method.

When patients return for subsequent anesthetics, it is important to assess how they responded to prior induction interventions. This assessment is generally obtained by asking for patient or family input about the previous experience. Although family input provides valuable information, there are many circumstances when this information is not available. These circumstances may include when the child is unable to describe the induction, the accompanying family member was not present for the prior induction, or the family cannot remember the details of the last induction experience. Family and patient input are always important to assess (when available), but having an experienced clinician's assessment of the prior induction experience may provide a more objective assessment. Clinician documentation could also promote earlier identification of patient responses to prior induction plans, facilitating more efficient planning of subsequent interventions.

Currently, some induction interventions are commonly documented in clinical practice (eg, method of induction, premedication, and use of induction room), but behavioral responses to inductions are not routinely documented. One reason for this is because most of the validated tools for describing induction behaviors and preoperative anxiety (eg, the modified Yale Preoperative Anxiety Scale,[6] the Perioperative Adult Child Behavioral Interaction Scale,[7] and the Induction Compliance Checklist [ICC][8]) were not created for routine use in busy clinical practice settings. The aforementioned tools require that the clinician review anywhere between 10 and 22 behavioral descriptions and determine which behaviors are exhibited. These tools provide a thorough assessment of the induction behaviors for research purposes, but time constraints in busy clinical practice settings can make them impractical to use on a routine basis. An ideal method for documenting induction behaviors should be thorough, but also succinct because there are more critical details that clinicians must attend to after a patient undergoes anesthesia induction including airway management, IV line placement, and administration of medications.

In a recently published article, Beringer et al[9] described a more concise tool for assessing pediatric induction behaviors. This tool, named the Pediatric Anesthesia Behavior (PAB) score, has only three behavioral categories. The PAB score demonstrates both reliability and validity and provides a more concise assessment of the induction behaviors than the previously mentioned tools. The PAB score, however, was only developed for children undergoing IV inductions. In many outpatient surgery locations, younger patients may undergo inhalation rather than IV inductions. Having a clinical practice tool for describing behavioral responses to both IV and inhalation inductions would be useful in these settings.

Local Problems

There were two problems to be addressed through this quality improvement (QI) initiative. The first was that the hospital did not have a standardized method for documenting patients' behavioral responses to inductions. This was problematic because when patients returned for subsequent anesthetics there was no way to evaluate the effectiveness of previous induction interventions if the family or patient was unable to provide input. Our hospital cares for many patients who have chronic medical conditions, and more than 40% of the patients return for a subsequent anesthetic. Research