INTRODUCTION
The American Society of Anesthesiologists and other international anesthesia societies have established clear preoperative fasting guidelines in order to help prevent aspiration. However, various negative effects have been found to be associated with prolonged fasting, including exaggerated hemodynamic response to anesthetics, as well as metabolic derangements1,2. In this study, we aim to characterize our institution’s baseline nil per os (NPO) practices and improve adherence to current evidence-based practice.

METHODS
Records for all patients age under 18 years who underwent surgical procedures at our academic hospital and surgery centers between April 1, 2013 and October 30, 2016 were identified. Data were gathered from our department’s perioperative database, which extracts data from the electronic health record (EHR). Our primary outcome was liquid NPO time, which was defined as the difference between time of last documented liquid intake and anesthesia start. Patients were stratified according to inpatient and outpatient status. Following acquisition of baseline descriptive statistics, a multidisciplinary intervention is planned starting with stakeholder engagement and SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, followed by action plan development and implementation (Figure 1). A T-test will be used to evaluate the presence of statistically significant difference in NPO times before and after intervention.

RESULTS
Pre-intervention statistics are seen in Table 1. There were a total of 20,182 cases during the approximately 3.5-year time period, with NPO data available on 16,170 (80.1%) cases. Overall, liquid NPO time averaged 576 minutes, nearly 10 hours. When stratified by inpatient versus outpatient status, liquid NPO times were found to be greater for inpatients (638 minutes) compared to outpatients (556 minutes). Post-intervention analysis and further stratification of baseline characteristics to identify high-risk patient subgroups is planned.

Table 1. Baseline NPO statistics

<table>
<thead>
<tr>
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<th>Cases with data available (N, %)</th>
<th>Mean liquid NPO time (mean +/- SD)</th>
<th>Age (mean +/- SD)</th>
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<tbody>
<tr>
<td>All</td>
<td>20,182 (16,170 [80.1%])</td>
<td>270.8 +/- 7.4 (5.5)</td>
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<td>Inpatient</td>
<td>5098 (4648 [46.2%])</td>
<td>293.9 +/- 6.4 (5.8)</td>
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<tr>
<td>Outpatient</td>
<td>15,084 (13,714 [90.9%])</td>
<td>265.0 +/- 7.6 (5.4)</td>
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NPO time reported in minutes, age reported in years. SD = standard deviation, NPO = nil per os.

Figure 1. SWOT Analysis

- **Strengths**
  - Decrease patient discomfort and irritability
  - Increase patient and family satisfaction
  - Decrease risk of intravascular dehydration and potential hemodynamic changes
  - Decrease risk of metabolic derangements
  - Improved adherence to ASA practice guidelines

- **Weaknesses**
  - Long-time practice of healthcare providers ordering NPO-after-midnight for all patients despite procedure time
  - Current EHR does not have specific NPO order set for solid vs various types of liquids
  - Will require education of providers and/or parents

- **Opportunities**
  - Increase stakeholders’ engagement in providing safe, evidence-based, patient care
  - Collaborate general pediatricians and EHR technicians to modify electronic order sets

- **Threats**
  - Physicians and nursing staff not willing to change
  - Difficulty of modifying electronic medical orders
  - Parents’ lack of understanding of the purpose and importance of adequate, yet not excessive, NPO time

DISCUSSION
At our institution, we found current preoperative fasting practices to be markedly in excess of recommendations. Given that feedback and accessibility of recommendations have been demonstrated to be more effective quality improvement tools, we plan to present providers with baseline and post-intervention NPO practices as well as integrate clinician decision support at the time of NPO order placement2. Our interventions have involved interdisciplinary meetings with general pediatricians and nursing staff, and will involve structured teaching. Modification of existing order sets is underway. Our goal is to direct quality improvement efforts to provide maximal results with efficient allocation of resources.

REFERENCES