Incidence and risk factors associated with post-intubation laryngeal lesions in a Pediatric Intensive Care Unit in Brazil
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Conclusion
Factors associated with post intubation laryngeal lesions in this study were need for reintubation, use of corticosteroids during intubation period, use of antibiotics and failure of extubation. The frequency of glottic lesions was higher than in the literature.

The presence of acute laryngeal lesions may add morbidity to children even after hospital discharge. It is important to determine factors associated with these lesions, as well as to perform early diagnosis in order to reduce severe complications, eg. stenosis. Therefore, pediatric intensivists should be aware of the risks of laryngeal lesions and the role of airway endoscopy for diagnosis prior to tracheostomy.

Based on previous studies and on our institutional setting, we decided to evaluate the frequency of laryngeal lesions after intubation in our patients and the main risk factors associated with the development of these lesions.

Introduction
The frequency of acute lesions is variable on literature, but recent studies have shown an incidence of subglottic stenosis around 10%. Risk factors associated with these lesions are length of intubation, tube repositioning and lack of patient sedation.

The goal of the poster
To highlight the importance of prevention of laryngeal lesions in PICUs and the role of airway endoscopy for diagnosis.

The image above shows an acute glottic lesion and the presence of fibrin. It was classified as a moderate post-intubation lesion after complete airway endoscopy.

Methods
All children from 3 months to 12 years of age intubated in the Pediatric Intensive Care Unit (PICU) of our Hospital were included in the study, from November, 2016 to November, 2017.

Patients were followed during all the intubation period, through daily completed protocols, regarding tube movement, sedation doses, medications used, reintubations and other parameters possibly related to lesions formation.

Those who presented extubation failure or obstructive airway symptoms up to 60 days after extubation were submitted to airway endoscopy under general anesthesia. The presented lesions were classified according to CALI.

Results
65 children met the study inclusion criteria and had their inclusion protocol fulfilled when intubated. Excluding study losses (25), median intubation period was 9 days (1-24 days). Mean age when intubated was 23 months (3m-10 years) and 55.4% were male.

Pulmonary disorders were the main cause for intubation (72.5%), especially asthma and pneumonia. Among all followed children, 7 presented with laryngeal lesions. Main affected airway level were the glottis, followed by the subglottis.

The present study shows a frequency of 17.5% (7/40) of laryngeal lesions in children submitted to invasive ventilation in the PICU, all of them classified as moderate or severe.

Comparing the groups of patients with post-intubation lesions and those without post-intubation lesions, the findings were statistically strengthened?? (p<0,05) among the variables: need for reintubation, use of corticosteroids during the intubation period, use of antibiotics (protector) and failure of extubation (last variable OR=12.9).

The picture below shows characteristics of the patients who presented with laryngeal lesions.

<table>
<thead>
<tr>
<th>Patient (age)</th>
<th>POP</th>
<th>AOF***</th>
<th>Tube size</th>
<th>Airway Endoscopy*</th>
<th>CALI</th>
<th>Final Outcome</th>
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</thead>
<tbody>
<tr>
<td>5 (f) 6-12m</td>
<td>1/1</td>
<td>Adequated</td>
<td>Adequated</td>
<td>Yes</td>
<td>Moderate</td>
<td>Resolution</td>
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<td>Resolution</td>
</tr>
<tr>
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<td>Resolution</td>
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<tr>
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<td>Resolution</td>
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<td>Resolution</td>
</tr>
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<td>Yes</td>
<td>Moderate</td>
<td>Resolution</td>
</tr>
</tbody>
</table>

*Period of intubation (days - first/second time)
**Attempts of intubation (first/second time)
*** Prior to tracheostomy

Patients with laryngeal lesions presented a higher frequency of reintubations, failure of extubation and use of corticosteroids. Patients who did not presented lesions received antibiotics for longer periods during intubation. All patients presented glotic lesions, with or without subglottic involvement.

Considering post-intubation laryngeal lesions, the best treatment is prevention and, secondly, intervention in the acute phase. Using this approach, it is possible to avoid tracheostomy in most cases. What subgroup of patients develop laryngeal lesions that progress to stenosis and which factors are potentially associated with this outcome are still questions to be answered, despite all recent studies in the area. It still needs to be proven, but maybe too many attempts of intubation may contribute to glotic lesions.