

# Intubation in Patients Presenting with Seizures to a Pediatric Emergency Department in a Safety Net Hospital

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## Introduction

Seizures can lead to organ damage, cardiopulmonary arrest, permanent neurological damage, and death<sup>1</sup>. Patients presenting to the Pediatric Emergency Department (ED) with uncontrolled seizures often require tracheal intubation (TI)<sup>2</sup>.

## Objective

We aimed to examine the factors associated with the requirement of TI in pediatric patients with uncontrolled seizures.

## Materials and Methods

We conducted a single-center retrospective study. We reviewed the medical records of fifty-six patients aged <1 year to 21 who presented to the pediatric ED with uncontrolled seizures. We grouped patients into intubated and not intubated and analyzed the clinical and demographic characteristics by group. We compared the probability of TI given a particular underlying seizure etiology. We calculated the trend between the duration of seizures and the number of medications with the probability of intubation.

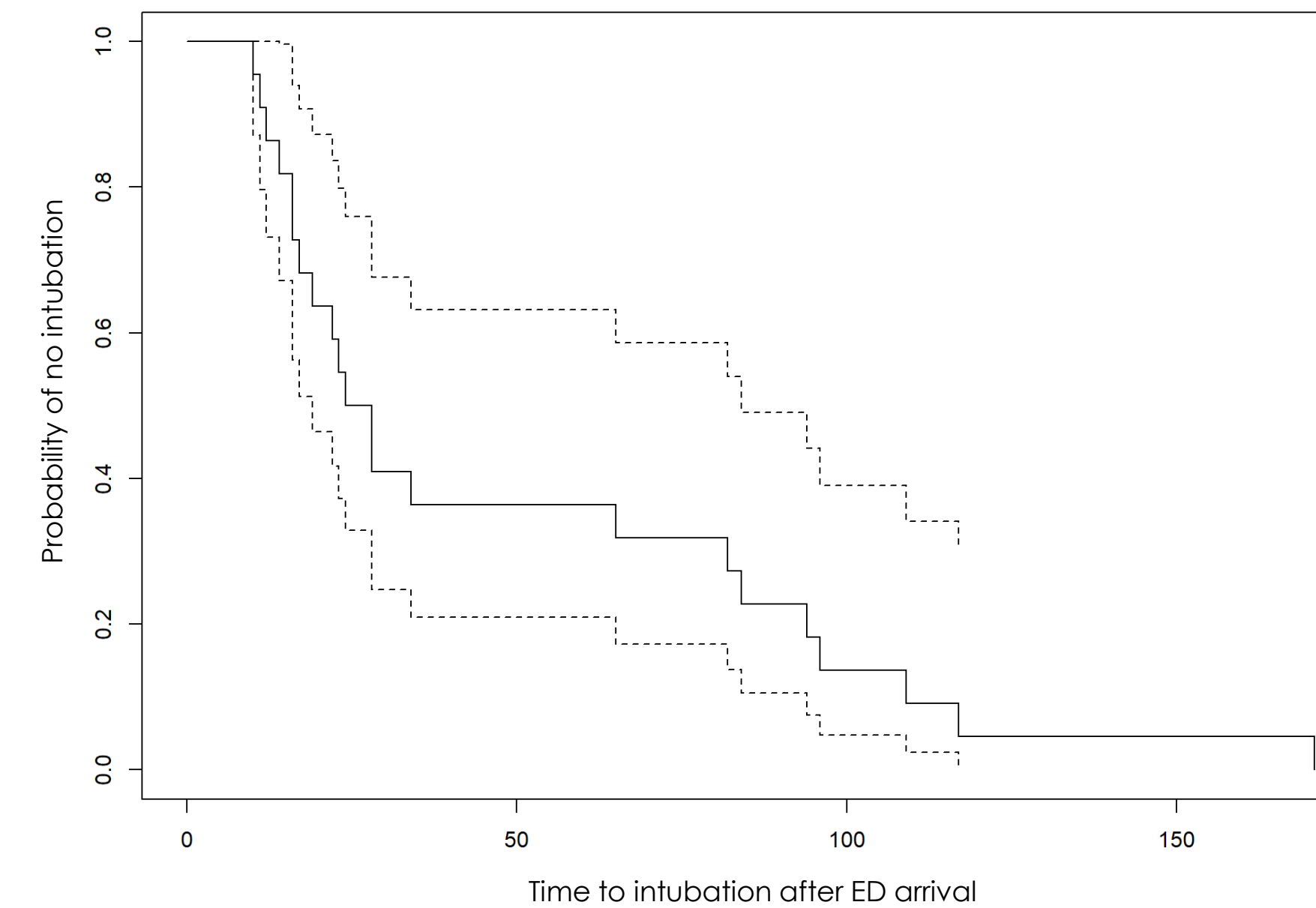
## Results

Forty-six percent of patients required TI. Demographic and clinical characteristics of the cohort can be found in **Table 1**. The most common cause for seizures in the intubated group was complex febrile seizures. There is a linear trend between increasing duration of seizures and chances of intubation (p= .035) As shown in **figure 1**. A longer duration of seizures (10-60 min) increased the odds of intubation by 4.2 times [95% CI 1.2, 14.4], as shown in **figure 2**.

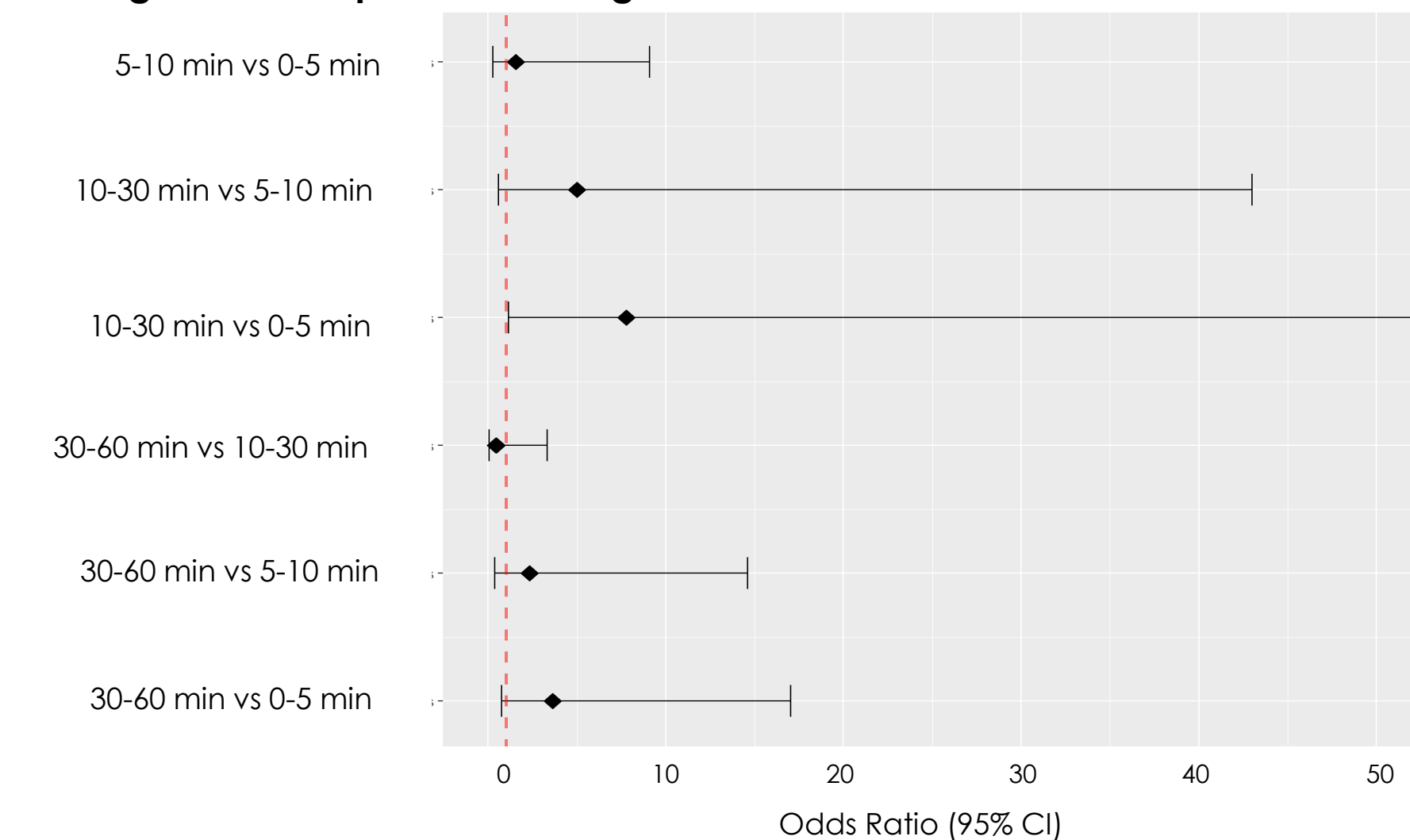
**Table 1**

	Tracheal Intubation (N=26)	No Tracheal Intubation (N=30)	p-value
<b>Gender (M)</b>	16 (61.5%)	17 (56.5%)	0.598
<b>Age group</b>			0.735
• <1	4 (15.4%)	4 (13.3%)	
• 1-2	8 (30.8%)	9 (30.0%)	
• 3-6	3 (11.5%)	7 (23.3%)	
• 7-10	4 (15.4%)	2 (6.7%)	
• 11-21	7 (26.9%)	8 (26.7%)	
<b>Pre-existing seizure disorder</b>	7 (26.9%)	16 (53.3%)	0.059
<b>Number of Drugs</b>			<0.001
• 0	1 (3.8%)	11 (36.7%)	
• 1	3 (11.5%)	8 (26.7%)	
• 2	5 (19.2%)	10 (33.3%)	
• 3	11 (42.3%)	1 (3.3%)	
• 4	6 (23.1%)	0 (0.0%)	
<b>EEG</b>			<0.001
• <b>No EEG</b>	8 (30.8%)	19 (63.3%)	
• <b>Normal EEG</b>	11 (42.3%)	6 (20.0%)	
• <b>Abnormal EEG</b>	7 (26.9%)	5 (16.7%)	

**Figure 1. Trend of duration of seizures and chance of intubation**



**Figure 2. Comparison of Lengths of seizures in terms of odds of intubation**



## Conclusions

While there could be more than one factor leading to intubation, some of the common factors include patients with underlying neurological disorders such as cerebral palsy, intracranial hemorrhage, severe TBI, and developmental delay.<sup>3</sup>

In our cohort of patients presenting to the ED with uncontrolled seizures, those requiring tracheal intubation had complex febrile convulsions. Longer seizures increased the risk for TI, and poly-drug therapy was typically needed for seizure control.

## References

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