

Adverse Events Much More Likely with Repeated Intubation Attempts

The incidence of adverse events tripled when a second attempt was needed.

To determine the association between adverse events and number of endotracheal intubation attempts, researchers reviewed standardized data collected from 1828 orotracheal intubations performed at an academic emergency department during 4 years. Almost all of the intubations (98%) were by performed by trainees, mostly second- and third-year emergency medicine residents. Adverse events were defined as accidental extubation, aspiration, cardiac arrest, cuff leak, dental trauma, dysrhythmia, esophageal intubation, hypotension (decrease in systolic blood pressure <90 mm Hg), laryngospasm, mainstem intubation, oxygen desaturation (decrease in oxygen saturation $\geq 10\%$), and pneumothorax.

Intubation was successful on the first attempt in 73% cases and in two or more attempts in the remainder. The incidence of adverse events increased with the number of attempts: 14%, 47%, 64%, and 71% with one, two, three, and four or more attempts, respectively. The most common adverse events in patients requiring multiple attempts were oxygen desaturation (38%), esophageal intubation (16%), aspiration (6%), and mainstem intubation (4%).

Comment: These findings reinforce those of a recent study of emergency intubations in Japan ([JW Emerg Med Dec 14 2012](#)). While it seems logical that the incidence of adverse events would increase with more attempts at endotracheal intubation, the dramatic rise from 14% with a single attempt to 47% with a second attempt strongly emphasizes the importance of maximizing the likelihood of success on the first attempt. Preoxygenation, proper patient positioning, appropriate equipment choice, and limiting the number of attempts by inexperienced trainees should be standard practice for every endotracheal intubation.

— [Diane M. Birnbaumer, MD, FACEP](#)

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Sakles JC et al. The importance of first pass success when performing orotracheal intubation in the emergency department. *Acad Emerg Med* 2013 Jan; 20:71.
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