



Critical Issues in ED Intubations

Key Article

- *Clinical Policy: Critical Issues in the Management of Adult Patients Requiring Endotracheal Intubation in the Emergency Department. Ann Emerg Med. 2025; e29-e38.*

Background

- Emergency physicians often intubate critically ill patients.
- Though common, endotracheal intubation is a high-risk procedure, with approximately 17% of ED intubations complicated by peri-intubation major adverse events – hypoxemia, hypotension, cardiovascular collapse, cardiac arrest.
- Unlike controlled intubations in the OR, patients in the ED who require intubation have a wide variety of clinical conditions that must be considered.
- In essence, most patients are overtly, or potentially, unstable with limited reserves that place them at increased risk of side effects of induction, intubation, and initiation of PPV.
- Efforts to optimize the patient's physiology prior to intubation to avoid these side effects is paramount.

Current Policy Statement

- Current policy seeks to address strategies to minimize peri-intubation physiologic decompensation.
- Not intended to be a complete manual on the evaluation and management of adult patients with endotracheal intubation.
- Rather, it is a focused examination on pertinent, critical questions.
- Goal is to provide evidence-based recommendations when the literature provides sufficient quality information to inform recommendations on a specific question.
- Not intended to represent a legal standard of care for EPs.
- Importantly, what may be best for most patients may not be ideal for an individual patient due to specifics about their anatomy or physiology. The current policy is intended to identify what may be best for the general population of patients but not a “one size fits all approach”.

Class of Evidence

- Level A recommendation: generally accepted principles for patient care that reflect a high degree of scientific certainty.
- Level B recommendation: recommendations for patient care that may identify a particular strategy or range of strategies that reflect moderate scientific certainty.
- Level C recommendation: recommendations for patient care that are based on evidence from Class III studies or, in the absence of adequate published literature, based on expert consensus.

Critical Question – For adults presenting to the ED requiring endotracheal intubation, are there peri-procedural interventions that can reduce the incidence of peri-intubation hypoxemia?

- Level A recommendation: none

- Level B recommendation: When feasible, optimize preoxygenation using NIV over conventional oxygen therapy for patients being intubated in the ED.
- Level C recommendations:
 - When NIV is not feasible, consider using HFNC for preoxygenation for hypoxemic patients being intubated in the ED.
 - Consider VL when available for patients being intubated in the ED.
 - Consider using apneic oxygenation for patients being intubated in the ED (consensus)
- Potential Benefit of Implementing These Recommendations
 - Fewer episodes of hypoxemia
 - Reduction of mortality
- Potential Harm of Implementing These Recommendations
 - Potential for adverse events associated with use of NIV during preoxygenation
 - Potential increase cost related to use of HFNC and NIV, including aspiration
- Topics considered in researching this question and development of recommendations
 - Preprocedural checklists
 - Patient positioning
 - Preoxygenation and apneic oxygenation
 - VL versus DL
 - Bougie and stylet
 - Medications
- Brief Summary
 - When feasible, a strategy of NIV for preoxygenation reduces hypoxemia compared with HFNC and conventional preoxygenation strategies.
 - Data on apneic oxygenation is mixed – however minimal risk
 - No difference in hypoxic outcomes for those intubated with a bougie rather than a stylet or those intubated with an endotracheal tube and stylet versus no stylet.
 - VL does not decrease the frequency of hypoxemia compared with DL, though it does increase first pass success.
 - Use of preprocedural checklists, patient positioning, and medication choice did not affect hypoxemia.

Critical Question – For adults presenting to the ED requiring endotracheal intubation, are there periprocedural interventions that can reduce the incidence of peri-intubation hypotension?

- Level A recommendation: none
- Level B recommendation: Use etomidate or ketamine as an induction agent to reduce the risk of peri-intubation hypotension.
- Level C recommendations:
 - Avoid the use of fentanyl, midazolam, or propofol as an induction or coinduction agent in patients requiring intubation in the ED.
- Potential Benefit of Implementing These Recommendations
 - Fewer episodes of hypotension
 - Reduction of mortality
- Potential Harm of Implementing These Recommendations
 - Potential for adverse events associated with use of induction agents
- Topics considered in researching this question and development of recommendations
 - Choice of induction agent
 - Dose of induction agent

- Pretreatment and coinduction agents
 - Fluid bolus administration
- Brief Summary
 - Methods to optimize patients' physiology to potentially reduce the risk of hypotension include fluid bolus administration, induction agent selection, dosing adjustment, and the use of vasopressors.
 - Overall available literature to drive recommendations is limited
 - Evidence on the use of ketamine and etomidate reflects their overall safety and efficacy in the critically ill population.