

Global ICU study identifies drug risk factor for patients on life support

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New research involving patients in intensive care has highlighted that propofol, an anesthetic drug commonly used to facilitate invasive mechanical ventilation, increases cardiovascular complications risk in

the critically ill.

This collaborative international study, led by Professor John Laffey at NUI Galway and researchers at the University of Milan-Bicocca, sought to understand the impact of airway management in critically ill patients.

Dr. John Laffey, Professor of Anaesthesia and Intensive Care Medicine at the University's School of Medicine and Consultant in Anaesthesia and Intensive Care Medicine at Galway University Hospitals, has led an international research team investigating the causes and impact of peri-[intubation](#) cardiovascular instability in almost 3,000 critically ill patients.

This research is part of the International Observational Study to Understand the Impact and Best Practices of Airway Management in Critically Ill Patients (INTUBE) which is investigating global practice in performing tracheal intubation in patients from 29 countries.

The paper was published in the *American Journal of Respiratory and Critical Care Medicine*.

As part of this research, the investigators identified important modifiable, previously poorly understood [risk factors](#) that increase the risk of critically ill patients developing shock and cardiovascular instability when undergoing urgent tracheal intubation to permit invasive mechanical ventilation, commonly referred to as 'life support'.

The identification of variables that can be modified through changes in [clinical practice](#) was explored as part of this study and evidence suggests that one commonly used anesthetic agent has a major role in the incidence of cardiac arrest and hypertension after intubation.

Professor Laffey explains that "airway management is universal but

prior to the INTUBE study data on the management of intubated patients has been scarce. Identifying risks is the first step in developing safer management approaches."

"Tracheal intubation is one of the most high-risk and frequently performed procedures in patients who are critically ill. Cardiovascular adverse events like low blood pressure and even cardiac arrest can be frequent after intubation. Different factors play a role in the increased risk in patients who are critically ill compared with patients undergoing the procedure for elective surgical procedures."

"To date, the research agenda on interventions to reduce risk in these patients in critical care has mainly focused on oxygenation optimization and on methods to achieve intubation at the first attempt."

"In our recent research as part of the INTUBE study we have identified that the commonly used anesthetic drug—propofol—is strongly associated with an increase in the incidence of cardiac arrest and severe hypotension after intubation. This is an important discovery, and the first time that this has been investigated in a truly global patient cohort such as the INTUBE study."

"As a result of this study it is our intention to conduct further [clinical trials](#) to develop and test alternative strategies to reduce the risk and severity of cardiovascular adverse events in critically ill patients requiring urgent [tracheal intubation](#). In the meantime, our data strongly suggests that propofol use should be restricted in this patient group and even avoided where possible."

"Training in the use of this specialized drug is key. The drug suppresses reflexes which makes it particularly good for intubation, but equally it appears to be this suppression that is causing risks for patients."

More information: Vincenzo Russotto et al, Peri-intubation Cardiovascular Collapse in Critically Ill Patients: Insights from the INTUBE Study, *American Journal of Respiratory and Critical Care Medicine* (2022). [DOI: 10.1164/rccm.202111-2575OC](https://doi.org/10.1164/rccm.202111-2575OC)

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