

# Emergency Airway Management: A multi-site survey of Irish Emergency Departments

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On behalf of the Irish Trainee Emergency Research Network (ITERN) collaborators

## Introduction

Emergency Airway Management (EAM) has now become an integral part of core and advanced specialty training in Emergency Medicine (EM) in Ireland. Although EAM is frequently performed in Emergency Departments (EDs) today, there is a paucity of literature on airway management in Irish settings. The aim of this study was to assess the resources and infrastructure in Irish EDs in relation to EAM.

## Methods

This study was facilitated by the Irish Trainee Emergency Research Network (ITERN) as part of an overall airway project entitled the National Emergency Resuscitation and Airway Audit (NERAA)<sup>1</sup>. ITERN recruited sites in Ireland to participate in NERAA via a targeted recruitment campaign via email and twitter. The sites included were adult only, or mixed EDs in Ireland. Paediatric EDs were not included due to low frequency of intubations (are rare events) and resource needs would be different. Once enrolled to NERAA, a survey was then distributed in February 2020 to each site and data including site demographics, airway equipment, airway trolley and airway training data was extrapolated. The survey data was handled by Google forms™. The respondents were ITERN site leads (non-consultant hospital doctors) who were supervised by ED consultants.

As part of the NERAA project, national ethical approval was obtained from the Mater Misericordiae University Hospital research and ethics committee in Ireland (Institutional review board reference 1/378/2112 TMR. Data was analysed using Statistical Package for Social Sciences (SPSS version 23, IBM, USA)

## Results

A total of 15 ED sites enrolled for this survey accounting for 57.7% of EDs in Ireland. Of the sites enrolled, 86.7% of these sites (n=13) were designated as training sites for the National Emergency Medicine Training Program. There was a rapid sequence induction (RSI) checklist in 86.7% of EDs with 73% (n=11) of sites having a video laryngoscope in the ED. All sites had a video laryngoscope on site in theatre or ICU. There was a difficult airway trolley in 80% (n=12) of EDs with 91.7% (n=11) of these sites having a difficult airway algorithm to refer to. The brand of ventilator in each ED varied with 40.0% of sites (n=6) using an Oxylog, 20.0% (n=3) using a LTV, 13.3% (n=2) Draeger, 13.3% (n=2) Hamilton, 6.7% (n=1) Phillips and 6.7% (n=1) Maquet. Regarding simulation training in ED, 33.3% (n=5) sites have participated in RSI or airway simulations in the past 6 months.

## Discussion

As part of the NERAA project, this site-survey is the first multi-site analysis of airway management in Irish EDs and provides a summary of current airway and educational practices. There is variation between EDs regarding the brand of ventilator used, but the majority of EDs in this study have access to RSI checklists, video laryngoscopes and difficult airway equipment. Given that most surveys completed were from EM training sites, this does have implications for training. As trainees move from site to site around the country, it can be challenging to become accustomed to new environments, and new equipment and would be challenging in a rapid evolving scenario to use a new ventilator for example, if one has not used it before. Standardisation of processes nationally would ensure consistency of care and improve patient safety. Regarding difficult airway preparation, most sites had a trolley and algorithm in their ED, but it is recommended that all sites have both of these adjuncts available to decrease the cognitive load in emergency airway situations which leaves room for improvement <sup>2</sup>.

It is well established that simulation training can improve safety and reliability in high stress situations, such as an emergency airway scenario <sup>3,4</sup>. It allows for safe training on a mock patient, without the risk of causing harm, and allows for the development of processes that are rapid, structured and effective for managing emergencies <sup>4</sup>. In our survey, only one third of sites included had ran RSI or airway simulations in the preceding 6 months prior to the survey. This is concerning for EM training, and as the literature suggests, simulation is a hugely beneficial tool for delivering education, and should be incorporated into training programmes on a regular basis.

A limitation of this study is the response rate. While just over half of the EDs in Ireland responded, the authors believe that this is an accurate representation of all sites in Ireland but realise that the results should be interpreted with caution. The EDs who did not participate or enrol were not followed up as this was the inaugural ITERN study, and it was felt that lack of prior network exposure and familiarity may be contributing factors to sites not enrolling. As part of the NERAA project, paediatric sites were not included, which could have also influenced the educational components of the survey.

## Conclusion

The findings of this study highlight that overall, there is consistency between Irish EDs regarding equipment and algorithms for acute airway management, but there are discrepancies regarding the frequency of airway simulations. Our study could provide a platform to further develop national standards for EAM in Ireland. Further studies focussed on education specifically would be beneficial to improve training processes nationally.

## Declarations of Conflict of Interest:

None declared.

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