# Implementation of a Digital Airways Registry at the Princess Alexandra Hospital ED

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## Introduction

Airway registries are used globally to record data on intubations performed in pre-hospital and emergency department settings.

Real-world implementation of registries is challenging and their utility in guiding practice improvement can be limited by the resulting data quality.[1]

Overall intubation documentation in medical records by ED physicians has found to be poor, presenting a problem for registries which rely on thoroughness.[2]

## Research objectives

A prospective, observational digital airway registry was established at the Princess Alexandra Hospital ED, utilising a dedicated digital artificial airway form (dAAF) within an integrated electronic medical records system (iEMR).

This project aimed to compare airway registry data obtained from a paper-based form with data on a digital artificial airway form implemented within the iEMR.

## Methods

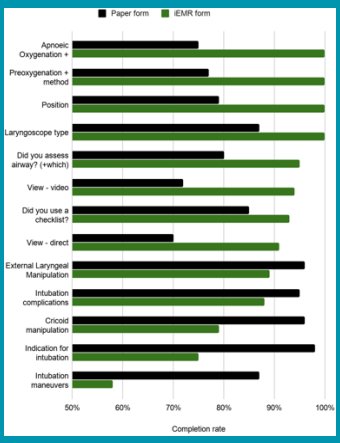
Data from the PAH-ED were reviewed from the paper-based airway form between August 2018 – January 2019, and the digital form between July – December 2019.

A follow-up of dAAF data between July - December 2020 was undertaken to understand the long-term compliance.

A survey was distributed to senior house officers, registrars and consultants in the PAH-ED to understand barriers to them using the dAAF.

## Results

Overall utilization of the dAAF was high, with 57 forms completed for 60 intubations (95%).
The paper-based AAF, with its free-form written answers , had lower completion rates than the dAAF for: laryngoscope view, oxygenation method, preoxygenation method, airway assessment, laryngoscope type.




Poor documentation on the dAAF were predominantly in fields in which the answer was likely to be checked as 'no': airway difficulty, external laryngeal manipulation, intubation complications, and cricoid manipulation.

Important airway technique data points, such as the Cormack-Lehane view grade, and methods used for oxygenation were more likely to be recorded on the dAAF.

From a general survey of staff using the dAAF, the form was identified as a useful data collection tool, with some suggestions to update the form to be more easily identifiable within iEMR. Several senior clinicians identified that the junior doctors (registrars/house officers) would be more likely to complete intubation documentation on their behalf.

## Discussion

Documentation rates of key airway procedure questions required for registries remained at or above 88% in the transition from paper-based to digital forms, suggesting that the implementation of the dAAF has been successful. The largest decrease between completion from the paper-based to iEMR AAF was seen in the intubation manoeuvres field.

Future iterations of the dAAF may improve documentation quality by allowing fewer free text responses and minimizing ambiguity through standardized definitions of clinical variables.[3]

Expanded awareness and education to the junior ED staff could also further improve utilization of the dAAF and capture more airway procedure data.

## Conclusion

The study validates the use of a dAAF in capturing key data points required in airway registries, including drugs/dosages, view obtained, size of tube, placement confirmation and adverse events/difficulties.

## Selected references

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