

# Assessing the reduction in pre-hospital emergency anaesthesia (PHEA) time with pre-drawn drugs and a pre-built airway circuit

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## INTRODUCTION

Dosing errors in pre-hospital medicine are uncommon but can cause life-threatening consequences. Reducing the chance of human error can save lives. In the chaotic pre-hospital environment, reducing cognitive load on clinicians can decrease the time spent on scene, improving patient outcomes.

### Our aim:

- Evaluate the change in PHEA time using pre-drawn drugs and a pre-built airway circuit compared to the conventional method.

We hypothesised that the time to set up for PHEA would decrease with the new interventions of pre-drawn drugs and a pre-built airway circuit. The project was initiated after seeing different services utilising different procedures. In the absence of a national standard, we anticipate re-evaluating our local procedures based on our outcomes.



## METHODOLOGY

A cross-over study was performed as part of a quality improvement project, where specialist paramedics and doctors from HIOWAA or the local Hazardous Area Response Team (HART) simulated performing a PHEA in a pre-hospital setting.

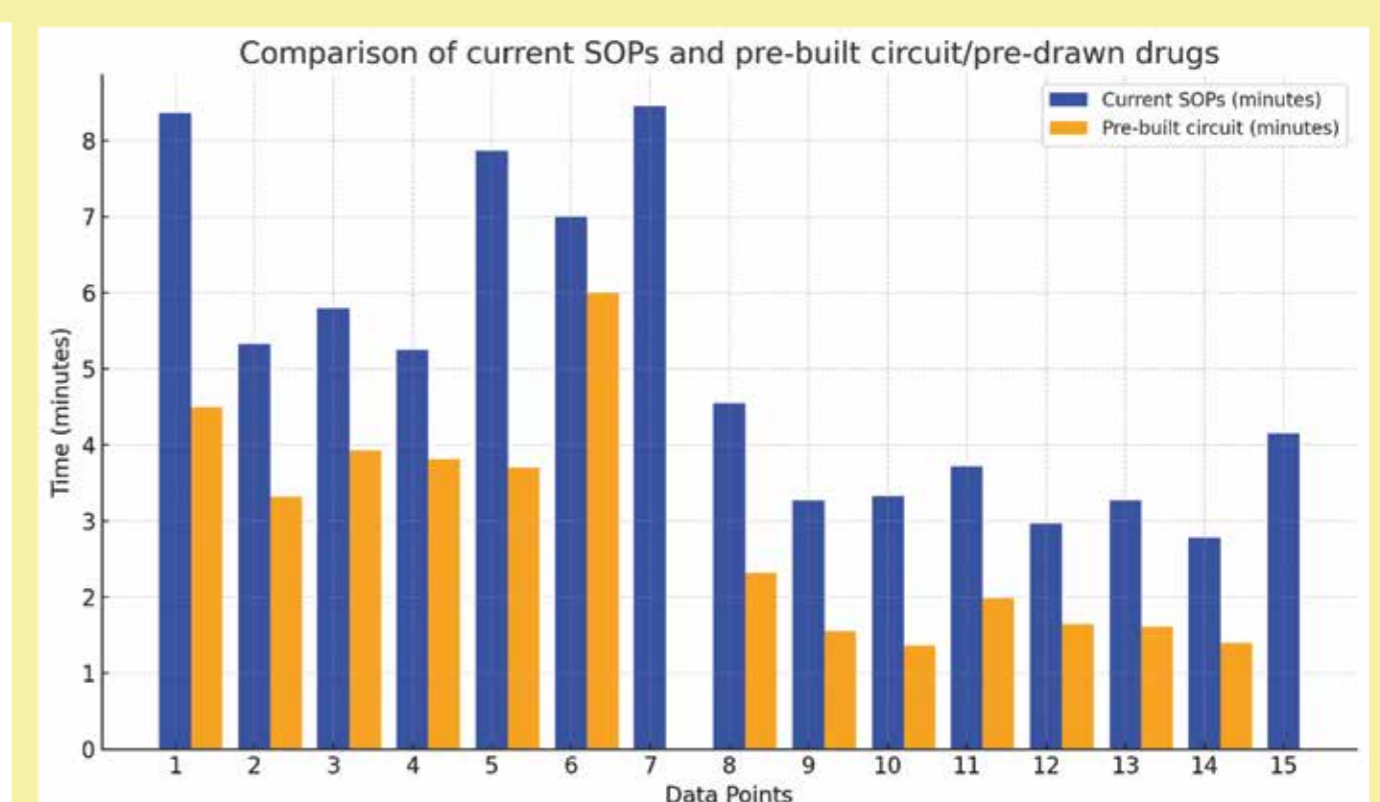
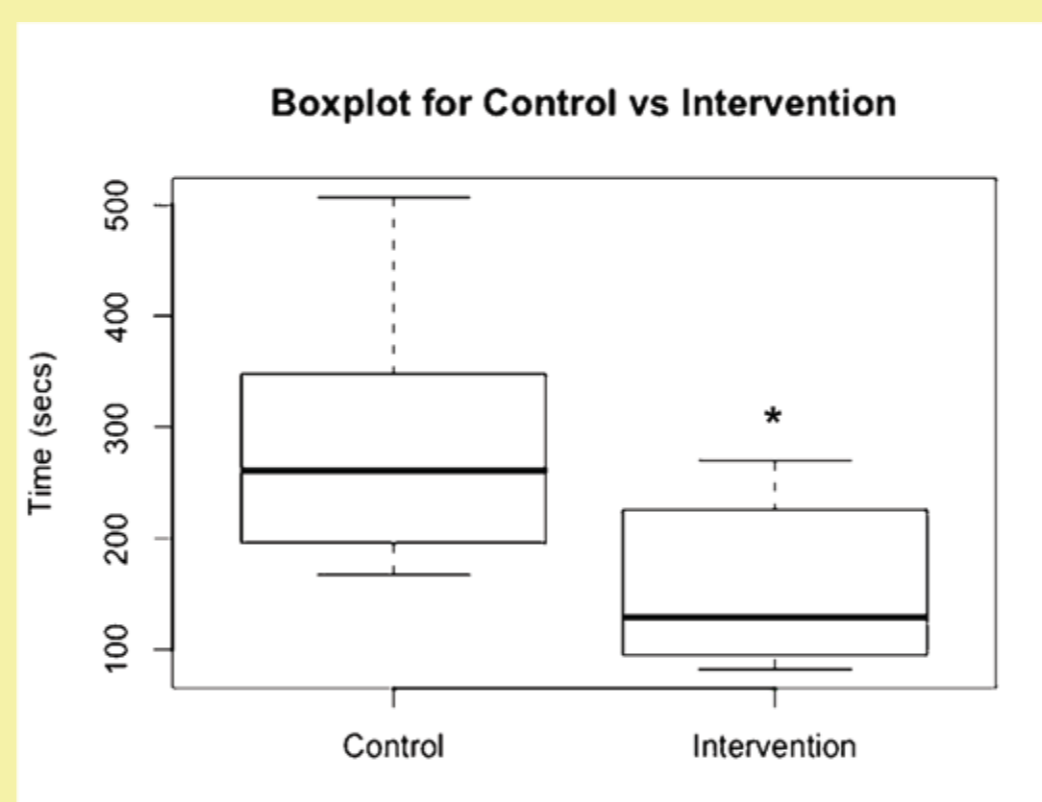
Clinicians used the red ALS bag containing either prefilled syringes and a pre-built airway circuit (intervention) or the conventional ampules, syringes and individually packaged components of the airway circuit (current Standard Operating Procedures (SOPs)).

All participants were experienced in performing PHEA in a pre-hospital setting. Each scenario was timed from the point the clinician walked into the room and stopped on the administration of Rocuronium.



## RESULTS

- Using current SOPs the mean time to draw up PHEA drugs was 102 seconds (control).
- The intervention was on average 133 seconds quicker than the control.
- Using the Wilcoxon Rank Sum Exact test, the p-value was 0.003, demonstrating statistical significance.



## CONCLUSION

Pre-drawn syringes and a pre-built airway circuit significantly decreased the time from clinician arrival to PHEA.

This could lead to safer administration of PHEA and a reduced time on scene for patients.

As a result of the significant reduction in time interval for completion of PHEA, HIOWAA have updated their SOPs and adopted pre-built airway circuits and pre-drawn syringes.

## FUTURE WORK

Going forward we are further looking to:

- Increase our sample size to include clinicians involved in PHEA across Hampshire to grow our statistical power.
- Compare the total time on scene before and after intervention in scenarios where PHEA was administered.
- Audit pre vs post implementation administration errors including dosing errors.