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Design flaw of Melker kit may compromise patient safety

Some investigators have demonstrated poor performance for first time users of the Melker Universal Cricothyrotomy Catheter Set® (Cook, Bloomington,

IN, USA) [1, 2]. In contrast, two previous studies have reported high success rates with the same equipment [3, 4]. The conflicting results may be secondary to varied method, however we are concerned it may reflect poor human factor engineering [5].

In a previous study, we observed 22 anaesthetic trainees performing a cricothyrotomy on cadavers [2]. Participants had no prior hands-on instruction of the Melker kit. We observed frequent incorrect handling of the dilator and airway cannula following guide wire placement. We measured the time from a subject's first attempt to insert the dilator, with or without it being placed appropriately within the airway cannula, until the successful establishment of a definitive airway or abandonment of the cricothyrotomy. Thirty-six per cent were unsuccessful in placing the Melker kit in the trachea because of failure to load the catheter onto the dilator. Performance in successfully establishing an airway is shown in Fig. 2.

Our results suggest that many first time users did not intuitively recognise that the cannula needs to be loaded onto the dilator prior to insertion. This confusion led to increased time and failure to achieve a definitive airway. These findings are consistent with the study by Dimitriadis et al. [1] where the human factor errors using the kit were

similar. Cook Medical® produces a version of the Melker kit that has both the 4 and 6 mm internal diameter cannulae with the dilator preloaded inside the catheter and we suggest that the individually packed Melker kit should be similarly preloaded or discontinued to help prevent potential failure.

H. R. Bruppacher

V. N. Naik

M. D. Bould

Z. Friedman

St. Michael's Hospital, University of Toronto, ON, Canada

Hospital of Sick Children, University of Toronto, ON, Canada

Mount Sinai Hospital, University of Toronto, ON, Canada

E-mail: bruppacherh@smh.toronto.on.ca

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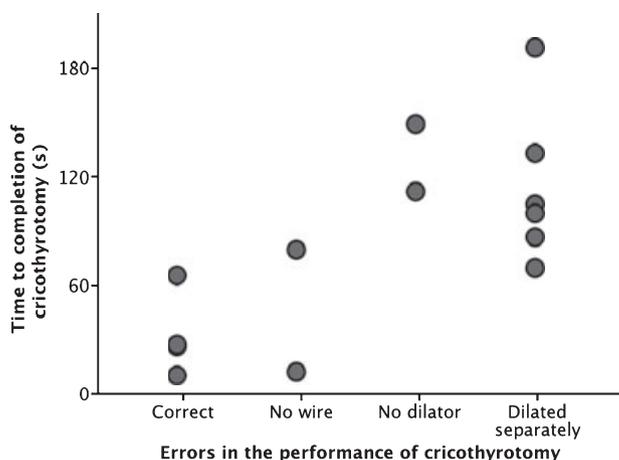


Figure 2 'Correct' refers to use of Melker kit as per manufacturer's instructions ($n = 4$); 'no wire' refers to a failure to use the guide wire when inserting the cannula and dilator ($n = 2$); 'no dilator' refers to insertion of the catheter without it being loaded onto the dilator ($n = 2$); 'dilated separately' refers to dilation before insertion of the cannula then loaded onto the dilator ($n = 6$).

Unusual failure of a single-use flexible laryngeal airway

A young man was scheduled for an elective septorhinoplasty having undergone an uneventful septoplasty 8 months