Introduction

There are limited options for trainees to practice the technique of percutaneous tracheostomy (PCT) prior to carrying out the procedure on a patient. In view of the Intensive Care Society Standards recommendation that simulation be incorporated more into training(1), we investigated ways that we could make the PCT training experience as high fidelity as possible. The fine motor control and dexterity required to operate a fibreoptic bronchoscope is a core skill required to perform this procedure safely. Medical grade fibreoptic bronchoscopes are prohibitively expensive (cost >£10,000 including the screen)(2) to allow for routine use in simulation training in case accidental damage occurs and infection control policy would not allow for training on animal airways models. We set out to find a cheaper flexible bronchoscope alternative that could be used in any training environment and that could also be used on animal tissue for training purposes.

Method

We found an endoscope sold online that is used commercially for imaging household drains. This cost <£20 and connects via WiFi to a smartphone which produces the image(3). We predicted that the drain-scope would most likely have a poorer quality image compared to the Storz Fibreoptic bronchoscope. We recruited 9 doctors who were experienced in performing PCT to trial our model using both the fibreoptic bronchoscope and the drainscope.

Results

Feedback using a 5-point Likert scale (median(IQR)[range]) was positive. It was felt that the drainscope was a reasonable substitute for training purposes (5(4-5)[4-5])) and it is more likely to have access to drainscope for training purposes than the Storz bronchoscope (5(5-5)[5-5])). Clinicians are more likely to be allowed to use animal airways with drainscope than with Storz bronchoscope (5(4.75-5)[4-5])). The drainscope is more costeffective for training simulation than Storz bronchoscope (5(4.75-5)[3-5])) and departments would be more likely to get funding for drainscope than Storz bronchoscope (5(4-5)[4-5])). We were surprised to find that the image from the drainscope was clearer than the one produced by the bronchoscope. This is likely due to the bronchoscope having a light source that reflects off the plastic model.

Discussion

On initial testing it appears that the drain-scope is a good substitute in a training environment for PCT simulation. It is highly affordable and has the advantage of providing clearer images when using plastic airway models.

References

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Authors

Shimmin, Hannah; Muñiz, Cristián; Willers, Johann; Jones, Emma. (Worthing Hospital)

Clinica Santa María. (Santiago, Chile)