



## *In vitro* testing of cyanoacrylate tissue adhesives and sutures for extracorporeal membrane oxygenation cannula securement

India Pearse<sup>1</sup>, Nicole Bartnikowski<sup>1</sup>, Amanda Corley<sup>2</sup>, John F Fraser<sup>1</sup>

<sup>1</sup>Critical Care Research Group, TPCH; <sup>2</sup>Nursing & Midwifery Research Centre, RBWH

criticalcare  
RESEARCH GROUP

### BACKGROUND

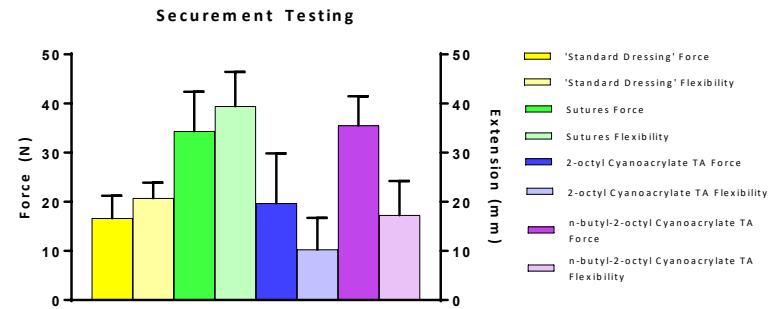
Extracorporeal membrane oxygenation (ECMO) is delivered via large-bore cannulae which must be effectively secured to avoid **complications including cannula migration, dislodgement & accidental decannulation**.

This study aimed to determine the **safety & efficacy of two TA formulations** for use in ECMO cannula securement & compare TA securement to 'standard' methods.

### METHODS

This *in vitro* project assessed: 1) the **tensile strength & flexibility** of TA formulations compared to 'standard' securements using a porcine skin model & 2) **chemical resistance** of the cannulae to TA. An Instron 5567 Universal Testing System was used for both experiments.

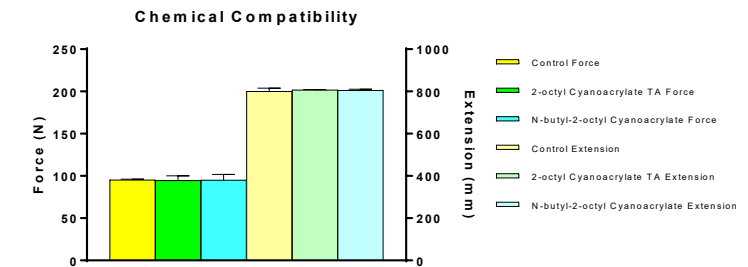
### RESULTS



Sutures & n-butyl-2-octyl cyanoacrylate TA both **significantly increased force** required to dislodge the cannula compared to standard dressing & 2-octyl cyanoacrylate TA.

There was **no difference in flexibility** between 2-octyl & n-butyl-2-octyl cyanoacrylate TAs.

The **resistance strength of cannula polyurethane was not weakened** after exposure to either TA after 60 mins compared to control.



### CONCLUSIONS

TA appears to be a **promising adjunct method of ECMO cannula insertion site securement**.

Further clinical research is still needed in this area.