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Te Whare Tohu o Te Hau Whakaora

Media release

July 26, 2024

Kombucha offshoot brews up fresh approach to anaesthesia training

A kombucha byproduct is finding an unexpected new use as a tool for training anaesthetists.

A small room in Wellington Regional Hospital houses a collection of more than 30 different-sized containers, each growing a SCOBY – or symbiotic culture of bacteria in yeast.

SCOBYs are integral to the kombucha brewing process. As the kombucha ferments, the SCOBY forms layers, and becomes progressively thicker.

But now, the hospital's anaesthesia department is using dried SCOBYs as replica human tissue for training in CICO – or Can't Intubate, Can't Oxygenate – procedures, when an anaesthetist needs to make an incision in a patient's trachea to allow oxygen flow.

The hospital had been using commercially-made artificial skin models for the training, but following feedback from participants about the low quality of the skins, they settled on using SCOBYs, dried for 6-10 hours after growing in sweetened tea.

Melita Macdonald, the manager of the hospital's simulation service, said using a SCOBY as replica human tissue for training provided increased realism.

"Under ultrasound, it actually looks more like human tissue than any of the other models that we've come across."

Anaesthetist Raj Palepu, who alongside fellow anaesthetist Dr Jeremy Young has been central to the hospital's SCOBY project, said the SCOBYs offered several other benefits beyond just realism.

"We've looked at a range of CICO training models, and all of them have issues – from poor fidelity, cost and environmental issues with commercially available models, to ethical issues with live animal workshops.

"When we looked to renew our commercial models, they were going to cost about \$900 each. We were looking for a solution that was cost effective but much more realistic, because the commercial models were pretty poor fidelity."

Using the SCOBY was also good for the environment.

"Our old commercial models largely go to landfill whereas all the SCOBY we use, no matter how many times we use it, you chuck it back in the tea, the SCOBY will start to grow again, and it's reusable. I don't think we've binned any SCOBY we've used over the past year," Dr Palepu said.

Mrs Macdonald is now running trials on different shapes, sizes and depths of containers to see how they affect SCOBY growth. In particular, the team is looking to cultivate SCOBYs of varying textures and levels of moisture, to allow them to be used in different training scenarios.

The group is considering formalised partnerships with universities and other organisations, as well as applying for research funding, to learn more about the training potential of SCOBY, the best way to grow it, and the types of models it can be applied to.

Mrs Macdonald was hopeful the SCOBY research could play a part in reducing inequity in training.

“They (Health New Zealand - Te Whatu Ora) are going to want to be able to increase equity of access to health education, and I'm aware of areas that just can't afford what we have in Wellington, so if we can help them access valid training tools at less cost, that'd be good.”

They've already taken the first step themselves, by donating two batches of their SCOBY to other hospitals in New Zealand, and would eventually like to see their innovative use of the SCOBY spread worldwide.

Photographs are available on request.

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