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Cutting-edge tech by Australia propels cardiac surgery forward

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Study shows promise for patients with heart failure

In a world-first preclinical study, Australian researchers have shown it could be possible to implant a potentially life-saving pump into the heart of those with heart failure, without leaving the ICU or breaking isolation restrictions for the sickest COVID-19 patients.

With up to 40 percent of COVID-19 deaths attributed to heart failure, the work shows immense promise and the researchers are eager to see it progress to human studies.

The study, published in Nature Scientific Reports, details a method of implanting the assistive pump into the main heart chamber guided by three-dimensional wide-angle intracardiac ultrasound – used for the first time in Australia as part of the study.

It was made possible by the state-of-the-art facilities at the University of Sydney's Hybrid Theatre, part of Sydney Imaging a Core Research Facility based at the Charles Perkins Centre and Royal Prince Alfred Hospital.

The mechanical pump used in the study is a left ventricular assist device currently in use in Australia. It is used for patients undergoing high-risk heart interventions through the skin or in instances where the heart is failing to pump enough blood to support the body.

The translational study was conducted with sheep to replicate heart anatomy similar to humans.