

Global study of ICU data to guide COVID-19 treatments

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Queensland researchers are leading a worldwide clinical study using AI to examine COVID-19 patient data from 300 intensive care units (ICU) to provide insight for health professionals to determine the best treatments for the disease.

University of Queensland researcher Professor John Fraser, a pre-eminent specialist at The Prince Charles Hospital and Director of ICU at Brisbane's St Andrews Hospital, said the COVID-19 Critical Care Consortium Study is the first of its kind in the world.

"Hospital and research centres from 47 countries are already participating in the collaboration, which will use artificial intelligence (AI) and data modelling to analyse [medical information](#) and treatments, and guide medical workers in their decision making," Professor Fraser said.

"Our frontline medical workers are currently contending with a disease that was completely unknown just a few months ago.

"Frontline doctors and nurses need evidence to guide them, especially when faced with COVID-19 patients who already have a chronic disease like diabetes.

"But at present, clinicians have nothing.

"Our goal is to arm them with evidence-based information on appropriate treatments for diverse patient needs in order to save lives."

Intensive care clinicians are now able to access real-time data on ICU patients, with researchers aiming to analyse potentially tens of thousands of patients on six continents, to see which COVID-19 treatments work best.

"By leveraging this data, we can enhance ICU [patient care](#), improve COVID-19 understanding in doctors and nurses and guide future treatments of the disease," Professor Fraser said.

"Ultimately, this study will give clinicians the decision support

mechanism they need to instantly determine the most appropriate COVID-19 treatment and increase ICU survival rates.

"We all need tried and tested information to guide us on what to do, not opinion, so we can bring this health emergency under control faster."

The study will be powered by a ground-breaking machine-learning tool, co-developed by The University of Queensland and IBM to analyse the data.

Clinicians will use the new tool to quickly record and share key clinical features, including a range of pulmonary, cardiological, neurological and renal measures, as well as the use of mechanical ventilation and ECMO (artificial heart/lung machine), duration of stay in ICU, and survival rates.

Professor Fraser said the [artificial intelligence](#) tool enabled data analysts to create predictive models and easily access information to guide medical workers on ICU treatments for the most vulnerable patients.

All data will be de-identified before being shared for modelling.

The COVID-19 Critical Care Consortium study is led by the Critical Care Research Group, based at The University of Queensland and The Prince Charles Hospital. It is supported by The Prince Charles Hospital Foundation, The Wesley Medical Research, Queensland Health and ISARIC (International Severe Acute Respiratory and emerging Infection Consortium).

Provided by University of Queensland

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