



OPTICS: Outcome Prediction in IntraCerebral haemorrhage Study – March 2024

The George Institute
for Global Health

Facts:

- The estimated costs of stroke globally are over US\$891 billion annually.
- ICH affects approximately 2 million people globally each year.
- ICH has a worse prognosis than ischaemic stroke (40% one-month case fatality, few survivors gaining independence), due to fewer proven treatments and established protocols.

Project Cycle:

2023–2025

Partners:

The George Institute for Global Health, Australia

Centre for Big Data Research, UNSW Sydney, Australia

Supporters:

Medical Research Future Fund

Principal Investigator:

Professor Craig Anderson

Background:

- Intracerebral haemorrhage (ICH) due to bleeding into the brain by the rupture of a blood vessel is the most serious and least treatable type of stroke.
- Outcome prediction after ICH is fundamental to guiding the care of patients. However, the current range of prediction tools are limited.
- Machine learning, in particular deep learning, has the potential to assist and improve outcome prediction/prognosis.

Aims:

- To use deep learning to develop a robust decision tool to help clinicians predict key outcomes at a personalised level in patients with ICH as part of routine clinical practice.

Methods:

- Data from surveys and focus groups will be collected and used to assist in the design and validation of the machine learning software.
- Existing datasets will be used to train the prediction model, including brain imaging data and medical records such as demographics, clinical data, medical history, haematoma parameters, other imaging parameters, and management over seven days.

Impact:

- Machine learning that has been trained by experts to recognise patterns from medical and brain imaging data could more accurately inform outcome prediction and prognosis in ICH cases.
- Improved outcome prediction will help clinicians make decisions around treatment for ICH patients for better outcomes.

Contact:

To find out more about this project and its principal investigators or The George Institute please contact Tina Wall +61 410 411 983 or twall@georgeinstitute.org.au

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