Making stroke recovery prediction tools freely available

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PRESTO Platform and Resource Database

Stroke is a leading cause of adult disability worldwide. Most people who experience a stroke have weakness on one side of their body. The ability to live independently again after stroke depends largely on the recovery of strength and function on the affected side. Predicting how well someone will be able to use their hand and arm, and when they will be able to walk again, is an important but difficult task. Being able to predict recovery and outcomes allows better management of the patient’s expectations, tailoring of rehabilitation goals, and more efficient use of time and resources. However, predictions based on clinical judgement and experience are inaccurate for many patients, especially those whose movement is more severely affected. Some of these patients make a good recovery and have good outcomes, while others don’t improve at all, and it’s impossible to tell them apart when relying on clinical impressions alone.

We’ve developed two clinical algorithms to address this challenge. The first is called PREP2, which predicts how well an individual patient will be able to use their hand and arm after stroke. The second is TWIST, which predicts when an individual will regain the ability to walk independently (Figure 1). We’ve combined algorithms in a project called Predict Stroke Outcomes (PRESTO). PRESTO aims to provide online information and resources to clinicians and researchers around the world to help with the implementation of both PREP2 and TWIST in a clinical or research context.

![Figure 1: An overview of the two clinical algorithms (a) PREP2 algorithm for predicting upper limb functional outcomes after stroke. (b) TWIST algorithm for predicting the recovery of independent walking](image-url)
Using Figshare and Wikispace together for PRESTO

The Centre for eResearch has helped us to establish PRESTO with WordPress and the University of Auckland’s Institutional Data Repository Figshare. WordPress provides us with a platform to host PRESTO and allows us to keep other groups up to date with our research, as well as explain how they can implement PREP and TWIST in a clinical or research environment (Figure 2).

Figshare provides a single place for us to upload all the resources related to PRESTO, and makes it easy for others to access and download these resources. Within Figshare we can easily track the impact of the resources in a real-time manner using altmetrics (alternative metrics) (Figure 3). Using WordPress and Figshare in combination makes it simple to go from finding and reading the information about PRESTO to downloading the resources. The PRESTO site can be accessed from http://presto.auckland.ac.nz/ and the resources are freely available on Figshare at https://figshare.com/collections/PREP2_Resources/3887401