In this project, we will undertake a comprehensive data linkage study to determine the cost-effectiveness of the MSU using primary data from the MSU, and datasets from the Victorian Department of Health and Human Services, Ambulance Victoria and the Australian Stroke Clinical Registry to guide policy.

Data on patients treated in the MSU are collected prior to hospital arrival and during the hospital stay for quality assurance purposes. These patients are followed up to assess outcomes after stroke. Data collected on equivalent patients treated with standard ambulance services may be accessed through Ambulance Victoria and the Australian Stroke Clinical Registry (AuSCR; clinical processes of care in hospital and patient reported outcomes at 90 days). We will link patient-level MSU data with the Victorian Emergency and Admitted Episodes Minimum Datasets (Victorian Department of Health and Human Services), as well as data from Ambulance Victoria and the AuSCR. The merged data will be analysed to compare the patients treated in the MSU with patients treated via standard ambulance services. MSU operating cost data will also be sourced. To assess the cost-effectiveness of the MSU compared to standard ambulance services we will undertake: (1) a historical-control comparison where patients with suspected stroke in the 12 month period before the MSU commenced will be compared to those in the first 12 months of MSU operation; and (2) a contemporaneous case-control study of patients treated when the MSU was available compared to equivalent patients unable to be treated when the MSU was unavailable during the first 12 months. These data will be summarised and sensitivity analyses performed.