Results In the first calendar 12 months of operation, the Melbourne MSU operated 30.5 service weeks and provided prehospital thrombolysis (pTH) to n=52 patients (44% of eligible infants) and directed n=33 patients for endovascular thrombectomy, of which 48% required bypass from the closest non-thrombectomy hospital. The overall median onset-to-pTH for MSU patients was 97.5 mins compared to the Australian metropolitan median of 150 mins. Thrombolysis in the first ‘golden hour’ increased to 13.5% from 3.3% in-hospital. Median onset-to-grain for MSU patients receiving EVT was 162 mins compared to 234 mins from historical controls.

Discussion Prehospital treatment and triage using the Mobile Stroke Unit in metropolitan Melbourne resulted in substantial improvements in commencement of reperfusion therapy. Work-flow times are approximately halved for thrombolysis and endovascular thrombectomy respectively. Prehospital thrombolysis also allowed a >400% increase in the proportion of treatment in the first ‘golden hour’.

Introduction In adults, there is strong evidence demonstrating the superiority of mechanical thrombectomy (MT) plus intravenous thrombolysis over thrombolysis alone for the treatment of acute ischemic stroke due to large vessel occlusion (LVO). The role of MT in the paediatric stroke population is less clear. Here we present an updated systematic review addressing the use of MT in paediatric patients, including three cases from our centre in Sydney, Australia. We have also completed an individual participant data (IPD) meta-analysis of clinical and angiographic outcomes based on these results.

Method Our systematic review and IPD meta-analysis was performed according to PRISMA-IPD (Preferred Reporting Items for Systematic Reviews and Meta-Analyses: Individual Participant Data) guidelines. Primary outcomes measures were change in NIHSS (National Institute of Health Stroke Scale) score following MT, and mRS (modified Rankin Scale) score at final reported follow-up. The secondary outcome measure was final angiographic result using the mTICI (modified Treatment in Cerebral Ischaemia) scale.

Results MT resulted in good long-term neurological outcomes (mRS 0–2) in 60/67 cases (89.6%), and successful recanalization (mTICI 2b/3) in 57/67 cases (85.1%).

Conclusions In paediatric patients, MT is an effective treatment for ischaemic stroke due to LVO. In the absence of a dedicated prospective registry and with randomized control trials unfeasible, this report represents the best available evidence for the use of MT in the paediatric setting.