Victorian Stroke Telemedicine – the Ballarat Health Service experience
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on behalf of the VST collaborators

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Background:
Access to thrombolysis is a key issue in regional Australia. The Victorian Stroke Telemedicine (VST) service was initiated to improve access to reperfusion therapies and ensure equity of stroke care in rural and regional hospitals, including Ballarat Health Services by providing after-hours support in the management of hyper-acute stroke. In hours, ischaemic strokes requiring thrombolysis are managed by the stroke home team.

Aim:
To review data before and after implementation of VST with regards to times to thrombolysis.

Methods:
We conducted a single center retrospective study. Data collected between July 2014 to December 2017 were divided into two groups, pre and post implementation of the VST program. The data were subdivided to in and out of business-hour groups. Across these groups, variables collected included door-to-CT time, door-to-needle time and door-to-VST call time for the out of business hour cases.

Results:
Annual cases of ischaemic stroke requiring thrombolysis increased from 16 (pre-VST) to 22 (post-VST 2016) and 30 (post-VST 2017). Median door-to-CT times in business hours decreased from 24 to 20 and 16 minutes respectively, with out of business-hour times decreasing from 56 to 31 and 26 minutes. Median door-to-VST call times reduced from 49 (2016) to 34 (2017) minutes. Median door-to-needle times in business hours decreased from 81 to 65 and 51 minutes respectively, while out of business-hour times were 87, 97 and 81 minutes respectively. In summary, door-to-CT times and door-to-needle times improved in and out of hours, with more obvious improvement in hours.

Conclusions:
Our results indicate a substantial improvement across the major time-based variables following implementation of the VST. We suggest that having the VST has served as a catalyst for the in-hours improvements that we recorded for our service. With ongoing monitoring, we anticipate further improvements in time parameters of intervention in patients with acute ischaemic stroke.

Figure 1. Ischaemic stroke cases requiring thrombolysis over a three year time period (pre and post-VST implementation) segregated by in/after hour periods.

Figure 2. Door to CT/Needle and VST-Call times in median minutes over a three year time period (pre and post-VST implementation) segregated by in/after hour periods.