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Streamlining Interdisciplinary Communication to Improve Suspected Acute Stroke Assessment, Diagnosis and Treatment Times: Preliminary Results for a Smartphone Communication App

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Background and Aims: Rapid assessment, diagnosis and treatment for patients with acute stroke events requires communication between in-field paramedics and multiple hospital clinicians (emergency, medical, neurology, radiology). Treatment delays may occur with information repeated between the interdisciplinary team from different organisations/ hospital departments.

Aim: To determine if a smartphone communication app can improve clinical care timelines for patients with suspected acute stroke.

Method: Using a 12 month pre-post historical-control design, the Pulsara™ Stop Stroke/ STEMI smartphone and tablet app (Pulsara™) was implemented pre- (25 Ambulance Victoria branches) and within-hospital (2 hospitals in regional Victoria, Australia). Pulsara™ provides secure, simultaneous, two-way, real-time communication. Eligible patients had suspected acute stroke events assessed by paramedics or hospital clinicians. Pre-hospital and hospital assessment and treatment times were captured; data collection is ongoing. Preliminary results compare stroke care timelines if Pulsara™ was initiated (Pulsara™) or not (no Pulsara™) (hospital 1: 22/08/2016-21/02/2017; hospitals 1 and 2: 29/05/2017-31/ 10/2017).

Results: There were 262 patients (no Pulsara™/Pulsara™: n ¼ 81/ n=185, both median 75 years, 52%/48% male) with Pulsara™ initiated by paramedics (n ¼ 115) and Emergency Departments (n ¼ 70). Faster paramedic hospital-arrival-to-departure by median 10 minutes (no Pulsara™: 55 minutes [IQR: 43-64]; Pulsara™ 45 minutes [IQR: 35- 55]). Faster emergency department door-to-first medical review time by median 18 minutes (no Pulsara™: 23 minutes [IQR: 6–65]; Pulsara™ 5 minutes [IQR: 1–11]) and faster door-to-CT completed by median 51 minutes (no Pulsara™: 81 minutes [IQR: 39-145]; Pulsara™: 27 minutes [IQR: 17-42]). All thrombolysis cases used Pulsara™ (n ¼ 38).

Conclusion: Preliminary evidence supports improved care timelines. Pulsara™ was successfully implemented for the first time outside of America.