USING SMARTPHONES TO DELIVER THE RIGHT CARE AT THE RIGHT TIME AT THE RIGHT PLACE

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Background – Acute stroke patients benefit from rapid treatment and specialist care at Hyper Acute Stroke Units (HASUs).¹ In areas with a centralised model of care like Greater Manchester (GM) in the United Kingdom (UK), patients with suspected stroke are taken by ambulance to HASUs, often bypassing their local hospital. Three HASUs serve the population of Greater Manchester (GM) between 06:45-22:45 with one remaining open overnight (fig 4). The pathway is further complicated by pathway exclusions, intended to divert unstable patients to the nearest hospital. At our three GM HASUs, previous monthly audits in October 2015 and January 2016 show a mimic rate of almost 50%.² To aid pathway compliance, reduce breaches and reduce mimics, we developed and piloted a smartphone app to support pathway decision-making.

Figure 1. Number of cases admitted to GM HASUs during two one month audits (Oct 2015; Jan 2016)

Figure 2. Map showing Greater Manchester stroke units; District Stroke Centre's in green, HASUs in purple & blue

Method –

- The “Pre Hospital Pathway Aid” (PHPA) application is designed to support all pre-hospital pathways but initial development and testing has focused on the GM Stroke Pathway
- A beta version was provided to 74 paramedics that volunteered to test the app
- Within the app there are both a demo and a live mode with a series of flowchart buttons to assist decision making
- The application functions through Global positioning system (GPS) tracking and is compatible with both Apple and android based phones

Results –

- Between 17/07/17 and 19/09/17, 44 registered users actively used the live app on 74 separate occasions
- 32/74 (43%) diversions to the nearest hospital were prompted**
- The pathway aid prompted these diversions for reasons such as a negative FAST test, onset >48 hours ago or the presence of a pathway exclusion

Figure 3. Flowchart demonstrating outcomes of 74 uses of the app. Green hexagons indicate diversion of patients to nearest Emergency Department

*Patients in the Pennine Acute Hospitals Trust catchment area will continue to go to Fairfield and not NMGH or Royal Oldham.

Figure 4. Current Greater Manchester Stroke Pathway document

Application video link– <https://vimeo.com/263762848/bcd002e86e>

Conclusion & Recommendations –

- Our pilot data suggest the PHPA app may improve pathway compliance, though the clinical effectiveness of the app cannot yet be determined by our pilot data
- We plan to make our app available to all GM pre-hospital clinicians on frontline North West Ambulance Service (NWAS) vehicle mobile phones
- We will evaluate the clinical effects of the full implementation through the connected health cities ‘before and after study’ using routinely collected HASU data

References

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