Utilisation of Brainomix in suspected stroke patients

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Introduction

Royal Preston Hospital (RPH) utilises Brainomix, an artificial intelligence (A.I) software designed to help provide real time interpretation of brain scans to help guide treatment and transfer decisions for stroke patients. It has been reported that the ASPECT score generated by Brainomix correlates highly with those assigned by human radiologists (1).

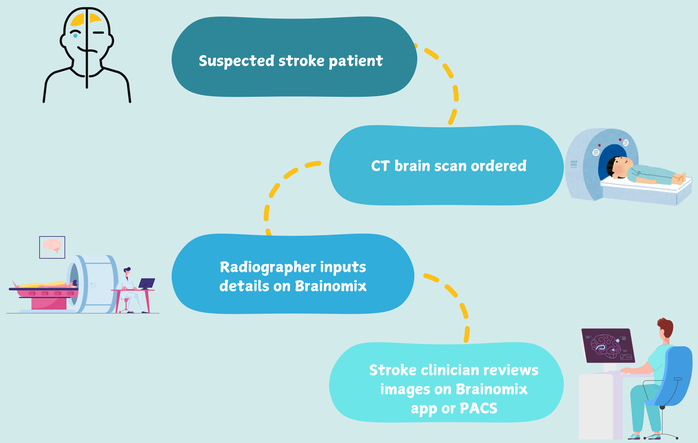
Brainomix automatically generates Alberta Stroke Program Early CT score (ASPECTS) and infarct volume in non-contrast CT images, which is used to guide clinicians in identifying thrombectomy candidates.

Aim and standard

This closed loop audit aimed to determine and improve the utilisation of Brainomix in suspected stroke patients admitted to the stroke ward at RPH.

The Brainomix pathway developed by RPH states that 100% of suspected stroke patient with non-contrast CT brain scans should be processed through Brainomix.

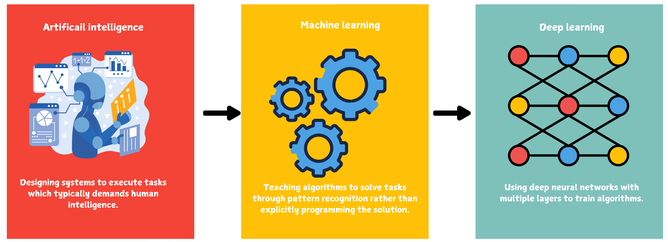
RPH Brainomix pathway



The flow diagram illustrates the RPH Brainomix pathway designed to deliver efficient stroke care.

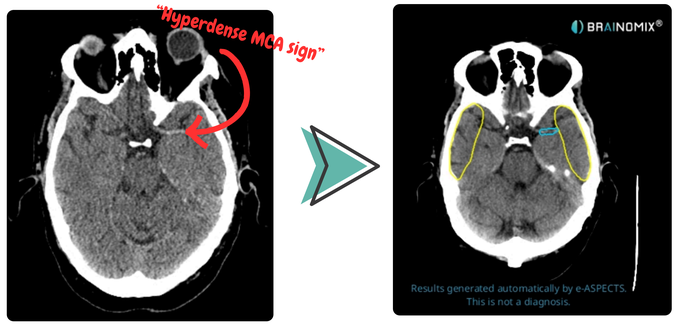
A.I in clinical practice

Basics



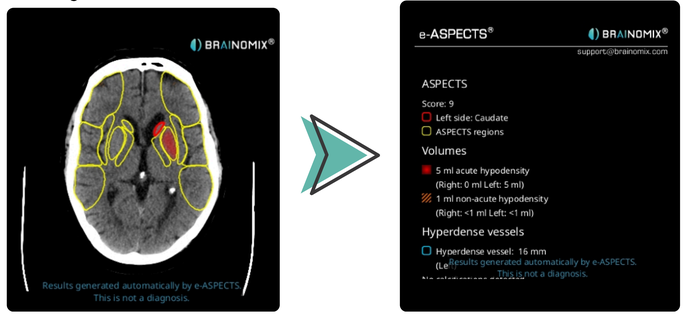
Brainomix in practice

Pathology recognition



Images above depicts Brainomix identifying a likely thrombosed left middle cerebral artery (MCA).

ASPECTS generation



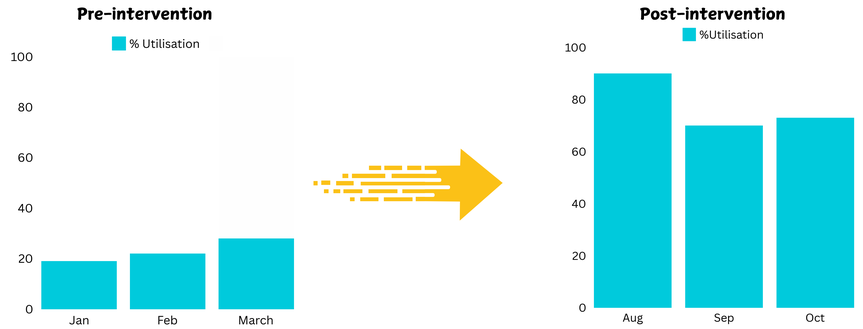
Images above demonstrates how Brainomix generates ASPECT scores to guide further clinical management.

Methods

- Suspected stroke patients were gathered retrospectively from the RPH Sentinel Stroke National Audit Programme (SSNAP) database from 1/1/23 to 31/3/23.
- Inclusion criteria were non contrast CT brain scans, >17 years of age and suspected stroke patients admitted to the stroke ward.
- Baseline data on Brainomix utilisation for suspected stroke patients were collated retrospectively from SECTRA on HARRIS FLEX.
- The implemented intervention mainly involved educating the radiology department on the Brainomix pathway by displaying posters at the radiographers' stations, delivering oral presentations to the Radiology department and addressing technical issues such as scan processing with the Brainomix team.
- Once implemented on 24/7/23, the audit was repeated and data was collected prospectively in the same way from 1/8/23 to 31/10/23.

Results

Percentage Utilisation of Brainomix



158 patients were included in the baseline data, which revealed that 23% had adhered to the Brainomix pathway. Post-intervention, this increased to 79% in the 153 patients that were included in the analysis.

Conclusion

This audit demonstrated a 56% increase in adherence to the Brainomix pathway at RPH, highlighting the effectiveness of the interventions. However, there is still room for improvement, as factors such as staff work pressures, knowledge of the pathway, and technical issues with the software pose ongoing challenges. Moving forward, audits will be conducted every three months to ensure sustained improvement.

References

1- Goebel, J., Stenzel, E., Guberina, N., Wanke, I., Koehrmann, M., Kleinschnitz, C., ... & Radbruch, A. (2018). Automated ASPECT rating: comparison between the Frontier ASPECT Score software and the Brainomix software. Neuroradiology, 60, 1267-1272.