

Children Are Not Little Adults – Pediatric Stroke Protocol at a Non-Freestanding Children’s Hospital

Megan Morgan, MSN, APRN, PCNS-BC, CPN and Amanda Tam, MSN, RN, CCRN

Megan.Morgan2@aah.org and Amanda.Tam@aah.org

Advocate Children’s Hospital

Background

- Advocate Children’s Hospital-Park Ridge is a non-freestanding children’s hospital located in Northwest Chicago.
 - Pediatric Emergency Department
 - 19 Bed PICU
 - 56 Bed Pediatric Unit
- Current standards of care in pediatric stroke management include specialized pediatric expertise, institutional pathways, and increased access to rapid neuroimaging.
- Institutional pathways have greatly improved communication, door-to-imaging, and door-to-intervention times.
- We needed a process and pathway specific for pediatric patients presenting with a concern for stroke.
- To align with evidence-based recommendations we developed a pediatric stroke guideline.

Purpose

- The primary purpose of the pediatric stroke guideline was to establish a mechanism for response of key personnel to provide evidence-based diagnostic and therapeutic interventions to pediatric patients with potential stroke.
- The metric that we aimed to improve was our “door-to-imaging” time.

Methods

- We use the root cause analysis (RCA) framework
- Reviewed historical data for pediatric stroke alerts, diagnoses, imaging timing/imaging selection, events and outcomes.
- Literature reviewed/ summary table.
- Benchmarked with other children’s hospitals.
- Expert opinion to determine best practices for pediatric stroke management.
- Process simulations completed.

Outcomes

Our overall outcome was decreased door-to-imaging time. We widely adopted the gold standard of care for pediatric stroke imaging from CT to MRI. Our children’s hospital doubled the number of pediatric stroke alerts called after the implementation of our pediatric stroke protocol.

The steps we took to reach this goal are detailed below.

- Pediatric stroke pathway
- Pediatric stroke policy
- Epic order set
- Pediatric Stroke Alert overhead page
- Centralized communication platform for providers, using the Join App
- Education of stakeholders (n=201)
- Improved awareness and recognition of stroke

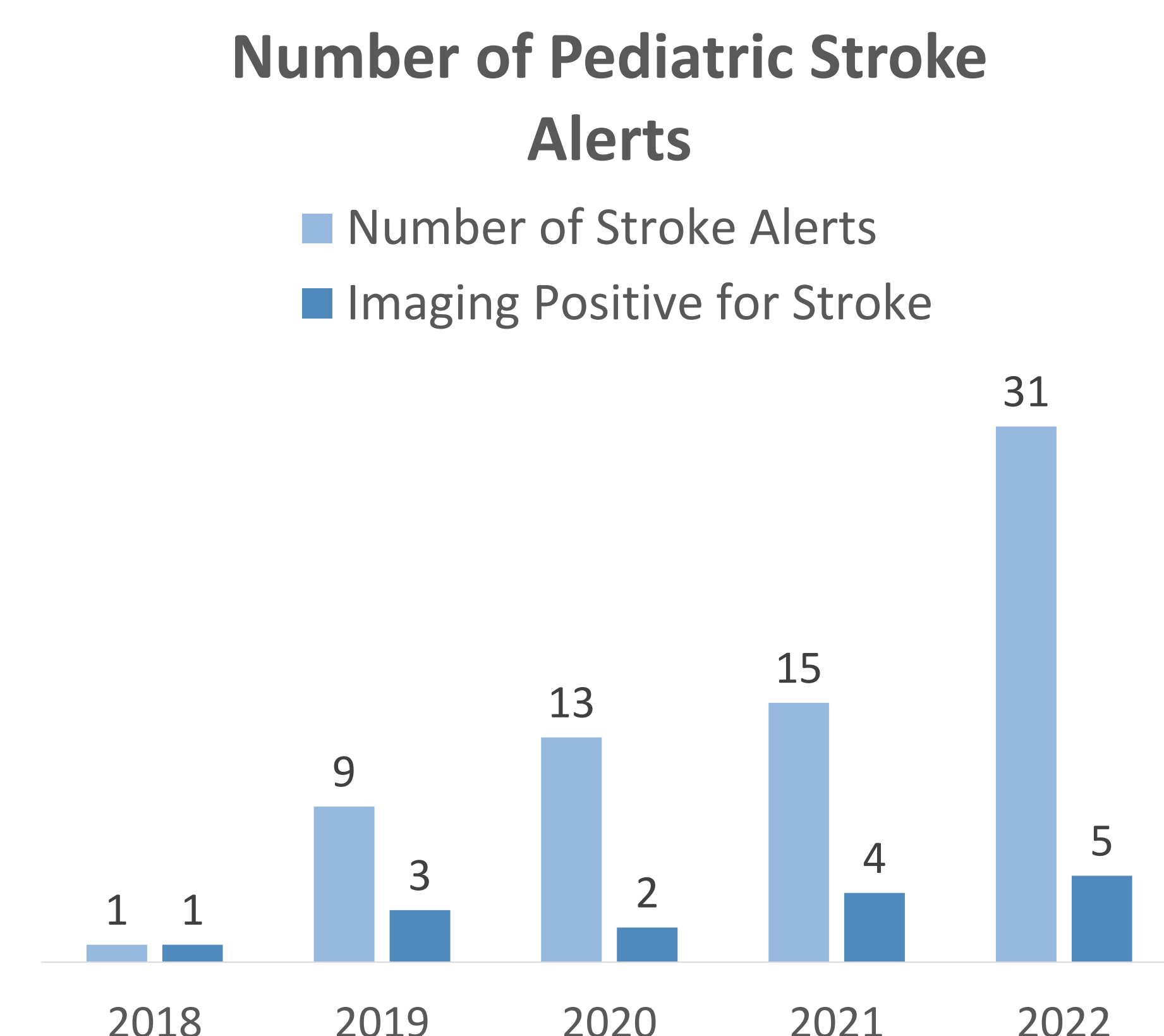


Figure 1. Pre-implementation inconsistent imaging standards. Post-implementation adoption of MRI as gold standard.

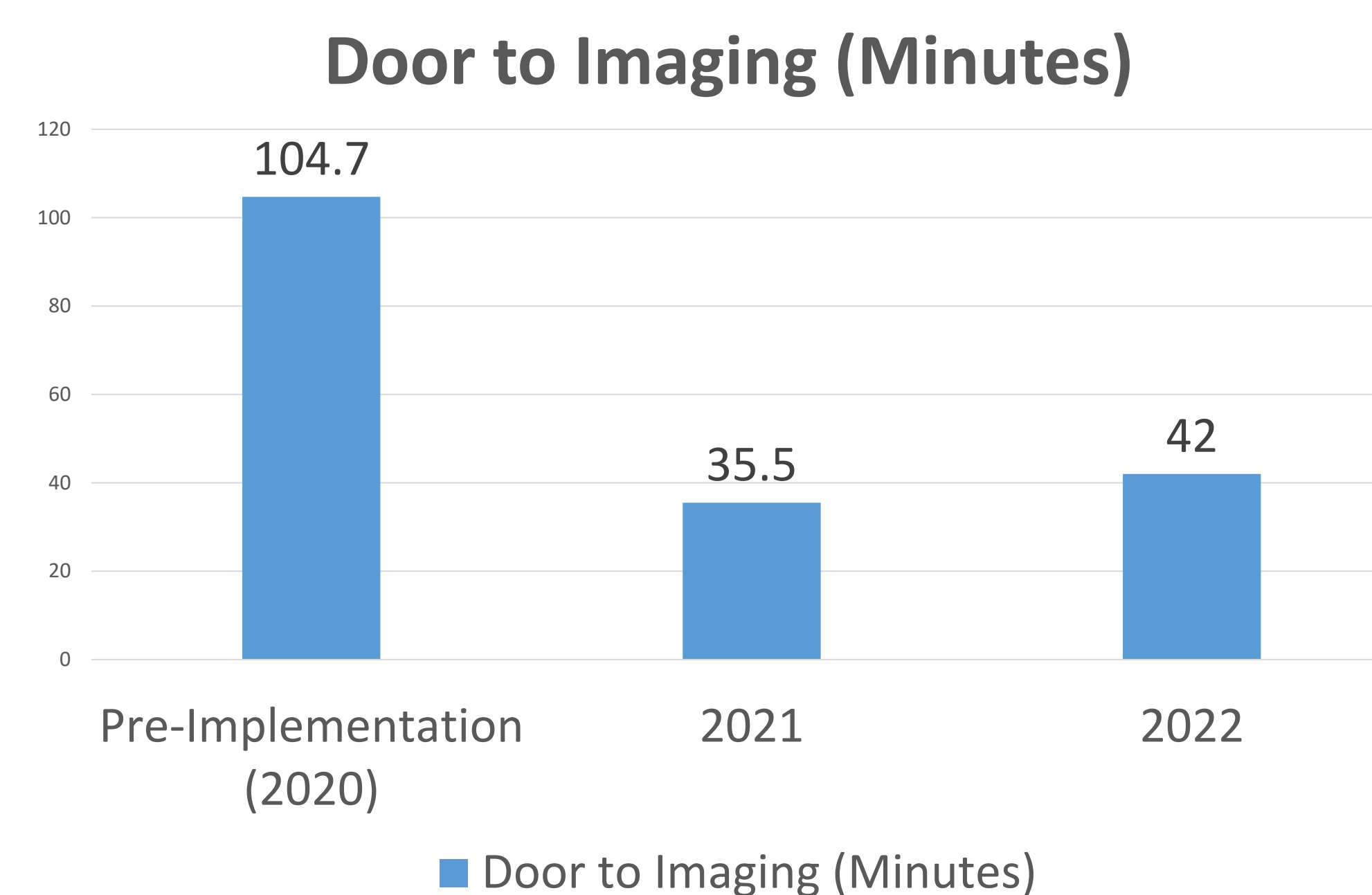


Figure 2. Door to imaging improvement

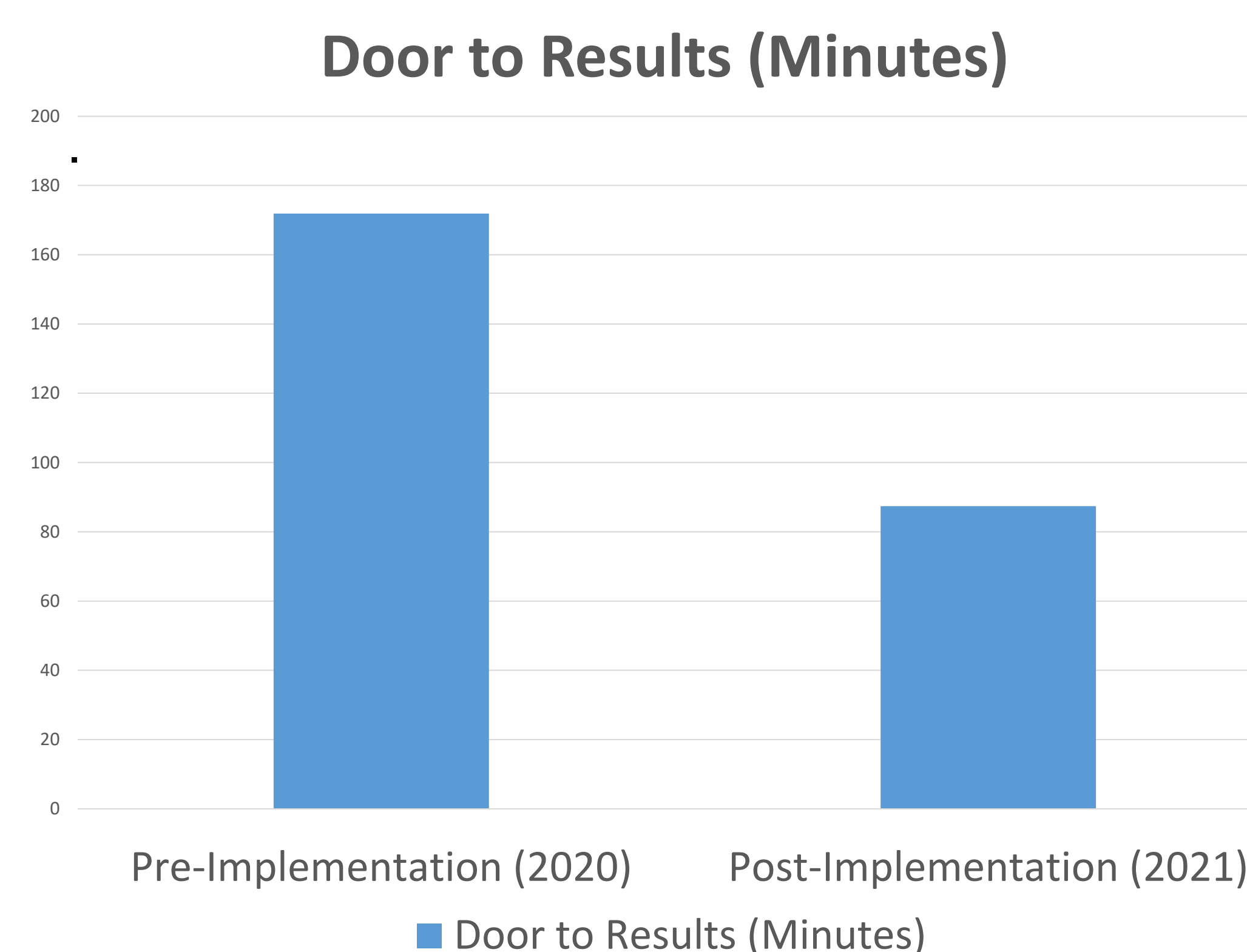


Figure 3. Door to imaging results significantly improved.

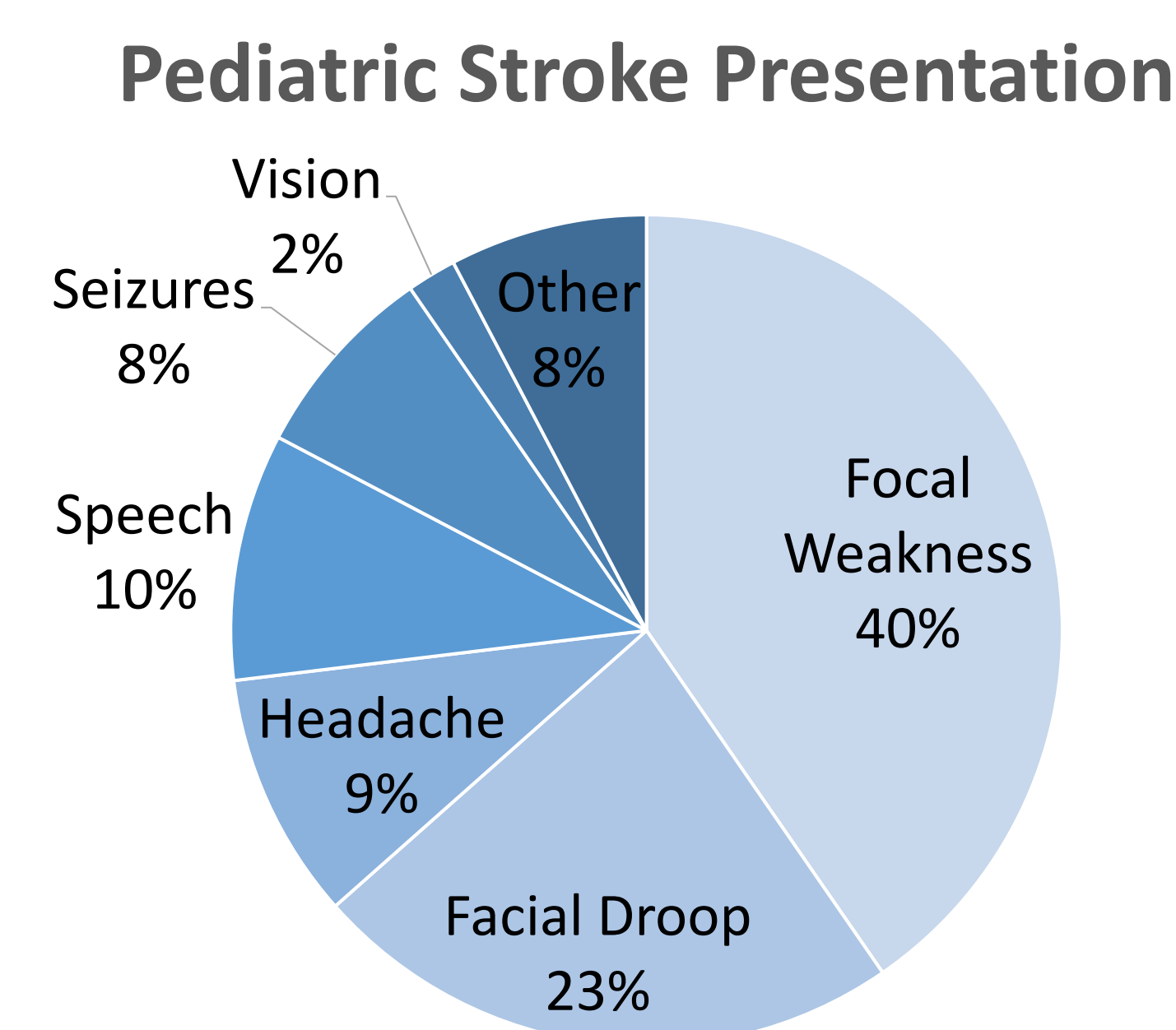


Figure 4. Reason for stroke alert.

Relevance

- Although stroke is one of the top 10 causes of death in pediatrics, stroke is often misdiagnosed, or diagnoses is delayed due to lack of awareness.
- Stroke is a medical emergency and requires urgent assessment, evaluation, and treatment.
- Strokes in children can present very differently than in adult.
- Developing pediatric specific workflows and education is crucial for improving care and outcomes for pediatric stroke patients.
- The RCA process emphasized the opportunities for improvement including education, imaging selection, and delineation for rapid assessment and management of pediatric stroke patients.

Implications for Practice

- Debunk the idea that stroke is an adult disease process.
- Create a streamlined framework and education for how, why, and when to call a pediatric stroke alert.
- Access to an easy-to-follow pathway for the assessment and management for a patient presenting with the concern for stroke, with recommendations to included in an electronic medical record (EMR) order set.
- Development and implementation of a pediatric specific stroke workflow to improve the care and management of pediatric stroke patients.
- Collaborate with key stakeholders.

Acknowledgements

Special thank you to Dr. Nekaiya “Kay” Jacobs, Dr. Michael “Mike” Cappello, Catherine Larson, and Lynn Klassman.



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