

Implementation of Pediatric Stroke Protocols



Vicky Tilton
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Project Description

- **Project Purpose**

- Stroke protocols currently are not utilized within our practice environment.
- Offering specialized stroke care allows for patients to receive antiplatelet and anticoagulant therapies and treatments that are more regiment and consistent along with preventative treatment modalities.

- **Background and Significance of Problem to Healthcare**

- Childhood stroke can be linked to many poor outcomes including: seizures, psychiatric disorders, behavioral difficulties, paralysis, and an overall quality of life impact that is poor (Jacomb et al., 2016).
- The need for guidelines and care delivery expectations is critical to care for the pediatric stroke patient.
- Lower rates of recurrence is reflective in the use of standardized treatment protocols and institutional pediatric stroke programs as (deVeber et al., 2019).
- Adverse childhood events have become instrumental in stimulating and explosion of transformative research into childhood adversity and leading to innovative practices (Lacey & Minnis, 2020).

Practice Setting

- **Practice Setting and Target Population/Community**

- The practice setting is within a 260-bed pediatric hospital.
- The patient population that will be cared for are ages from newborn to 21 years of age.
- The focus will be on those patients whose initial encounter is based on altered mental status, changes in behavior, sluggishness, slurred speech, delayed response times, seizure, and changes in personality or any other stroke related diagnosis.

- **Benefit of Project to Practice Setting**

- The key factor associated with the implementation of the protocol is the gap of having no standardized care practice in place within the organization as well as across disciplines. Based on this, complex interventions along with comprehensive stakeholder analysis to provide stroke care has been identified as an immediate need (Krieger et al., 2019).
- Through introducing and incorporating stroke protocols we can improve patient care outcomes, quality of life, and care delivery to this very critical patient population. Understanding how to promptly diagnose and treat stroke can lead to improved management, the ability to target rehab strategies, and improve outcomes (Leistner et al., 2019).

- **Key Stakeholders**

- Emergency Department Team and Providers, Critical Care Team and Providers, Radiology Team and Providers, Pharmacy Team, Neurology Team, Acute Care Team and Providers, Clinical Education Team, Chief Nursing Officer, Chief Medical Officer, Chief Financial Officer, Vice President of Hospital Operations, and Assistant Chief Nursing Officer.

Needs Assessment

The significance of early diagnosis and intervention remain the key elements associated with building a strategy to care for the pediatric stroke population.

Understanding the neuroplastic processes after childhood Acute Ischemic Stroke (AIS) can lead to improved management as well as targeting rehab strategies leading to better outcomes (Leistner et al., 2019).

Strokes in children are medical emergencies and require rapid diagnosis, treatment, escalation of care, and initiation of treatment (Baldovsky & Okada, 2020).

Through the implementation of pediatric stroke protocols, faster treatment in children will lead to faster recoveries, decreased recurrent stroke, decreased healthcare costs and earlier recognition and treatment will lead to improved patient outcomes (Baldovsky & Okada, 2020).

Theoretical Framework



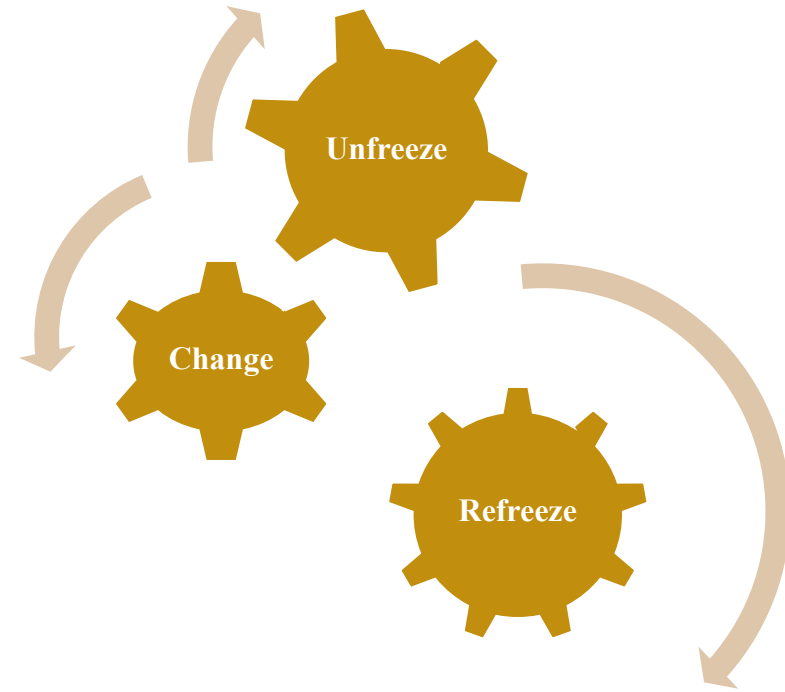
A change theory is implicated in order to be successful and institute a new model or process that can be adopted into practice.



Lewin's three-step change management can be utilized to transform care at the bedside (Wojciechowski et al., 2016).



Utilizing a lean system methodology based on Lewin's fundamental principle for change, leaders can focus on accountability, communication, transparency, and employee engagement (Wojciechowski et al., 2016).



Lewin's Change Theory

Review of Literature: Example

Academic Search Complete:

- CINAHL
- Purdue University Library Database Complete
- Cochrane Database of Systematic Review
- MEDLINE Complete
- EBSCO
- PubMed
- Wolters Kluwer
- Elsevier
- Sage Journals
- Oxford Academic
- Scielo.org
- Dove Press

Key Words: pediatric stroke, pediatrics, stroke, protocols, stroke protocols, stroke guidelines, nursing theory related to stroke, caring theory, and pediatric stroke protocols.

Level 1 = 5

Level 2 = 4

Level 3 = 6

Level 4 = 2

Level 5 = 0

Level 6 = 8

Literature Synthesis

Occurrence/Incident	<ul style="list-style-type: none"> Jacomb et al., 2018 – Level III Pediatric stroke has an incidence that is estimated between 0.6 and 13 cases per 100,000 children . Stroke in childhood has been linked to a multitude of poor outcomes inclusive of behavioral difficulties, paresis, seizure, psychiatric disorders, and a poorer quality of life .There are many cognitive domain reductions and impaired intellectual functioning related to stroke.
Diagnosis/Treatment	<ul style="list-style-type: none"> Mackay & Steinlin, 2018 – Level III Clinical and radiological phenotyping in an effort to recognize common constellations of clinical symptoms along with vascular patterns on cerebral angiograms have led to more timely detection and diagnosis of vasculopathy and stroke. The need for refined pediatric code stroke protocols along with predictive clinical decision support tools and the implementation of rapid MR is imperative to treatment regimen identification and improved outcomes.
Evidence/Education	<ul style="list-style-type: none"> Kupferman et al., 2021 – Level II MacKenzie et al., 2017 – Level II Pacheco et al., 2018 – Level III Wei et al., 2019 – Level III Wojciechowski et al., 2016 –Level II Evidence for stroke protocols in the pediatric stroke population within the organization is clear. Current process includes the utilization of other pediatric organizations for telemedicine neurology consult services, however the impact is the inability to obtain timely feedback and gain appropriate direction for stroke treatment. Education for the nurses and physicians within the organization is imperative and highly indicated in an effort to treat and care for this unique patient population. The ability to implement a stroke protocol that offers guidance for timely imaging and a solid pathway for treatment will improve patient outcomes and allow for the patients to remain at the organization for treatment and care delivery.
Vision/Team	<ul style="list-style-type: none"> Aguilar-Salinas et al., 2019 – Level III Krieger et al., 2019 – Level II Creating a setting through a shared vision that can be adopted across several disciplines is critical. The multidisciplinary team values learning, evaluation and skill that enables clinical and managerial camps to enable each other and lead to change. There are many opportunities to foster this effort from networking, information sharing, shared goal setting, patience and persistence with practice change and implementation, and the ability to understand other's agendas along with obstacles and opportunity for making a change for the purpose of positive patient impact.

Project Implementation

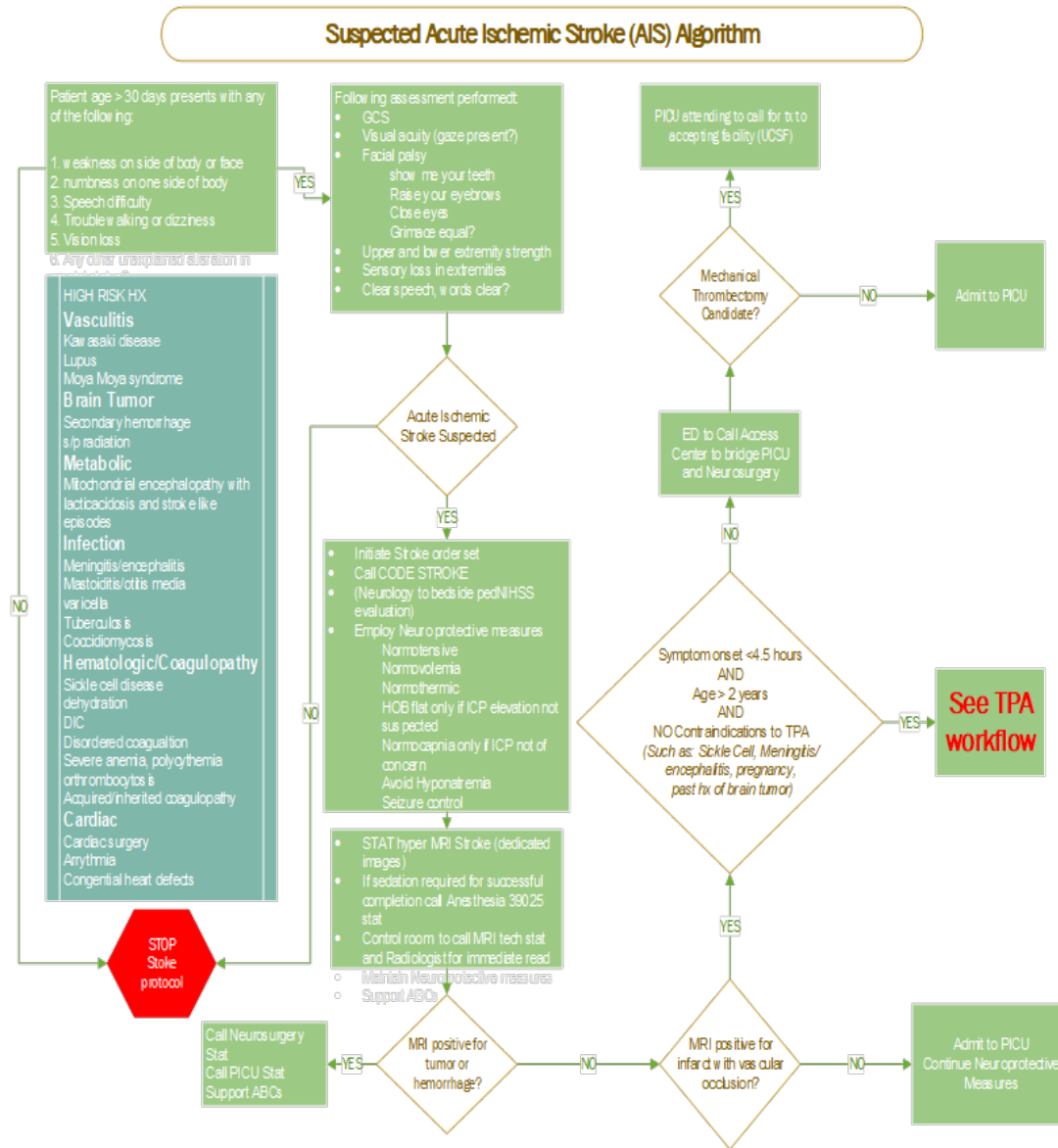
- **Plan:** To implement pediatric stroke protocols in the pediatric hospital setting.
- **Setting:** Environments of clinical care delivery will be the emergency department (ED), radiology, and the pediatric intensive care units (PICU).
- **Multidisciplinary team & Key-Stakeholders:** ED Director of Nursing, ED Certified Nurse Educator, ED Provider, PICU Intensivist, PICU Director of Nursing, PICU Certified Nurse Educator, Assistant Chief Nursing Officer (ACNO), Chief Nursing Officer (CNO), Chief Medical Officer (CMO), Neurology Medical Director, Medical Director for Neurosurgery, Trauma RN Coordinator (ED), Medical Director of Radiology, and the Director of Radiology.
- **Collaboration & Data Collection:** Opportunities to collaborate with other pediatric organizations within the Children's Hospital Association (CHA) is being utilized as well as organizational connections and list serves for projecting, planning, and in conjunction with supporting ongoing efforts. With gathering data, the ability to identify gaps, barriers, and needed interventions will surface. Collaboration with our safety and quality colleagues will be incorporated and data will be compared and justified.
- **IRB approval :** Was obtained through the Purdue Global University IRB Committee and the project proposal was approved.
- **Project Work:** Initiation of the project started.

Project Implementation (continued)

Challenges, Barriers, & Outcomes:

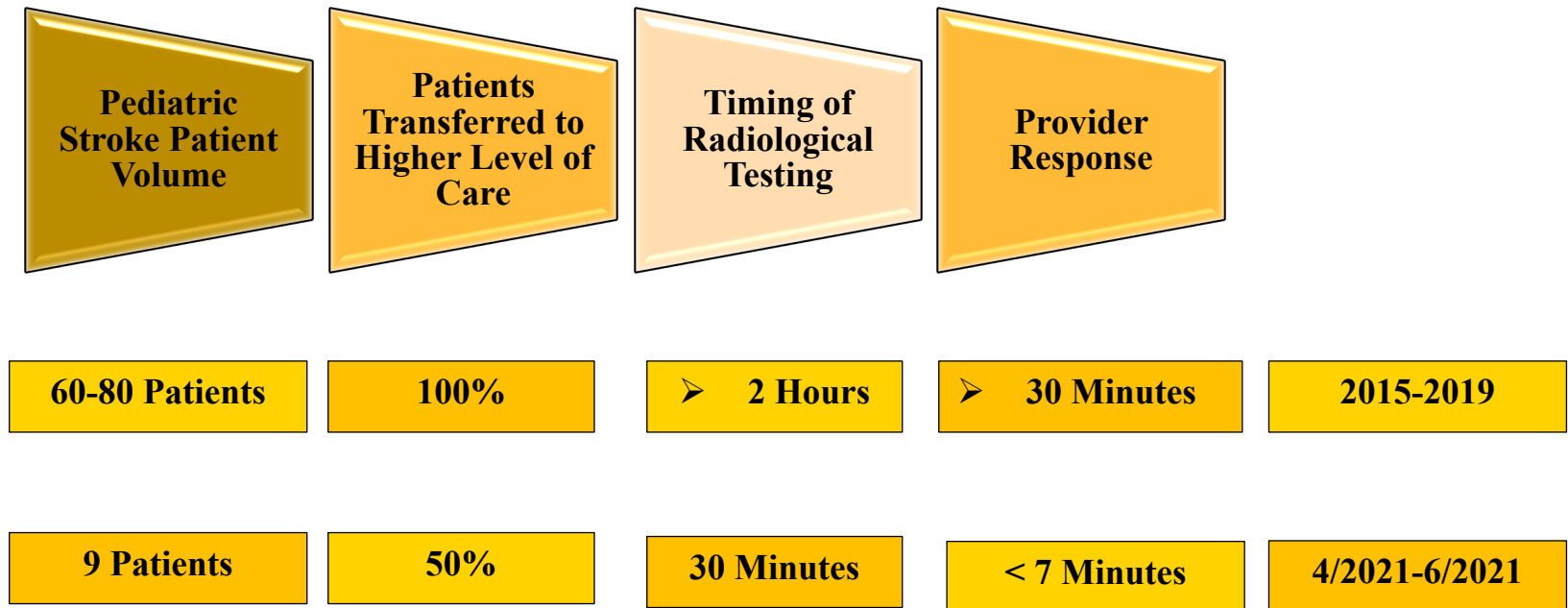
- There were challenges associated with the neurologists, which pushed out the timeline slightly as it was imperative to continue to connect with leadership to identify expectations of that team.
- Ongoing observations and data collection remained on track and interpretation of the data within the project was vital and reliant to further investigate the challenges, limitations, opportunities, trends, and outcomes relative to the project work (Kolling et al., 2021).
- The project was successfully completed inclusive of a post-education survey as well as a summative survey having been completed.
- The outcome of the project has proven to be financially beneficial for the organization and care teams, therefore much of the expenses identified were approved and had minimal impact.

Protocol



Data Analysis

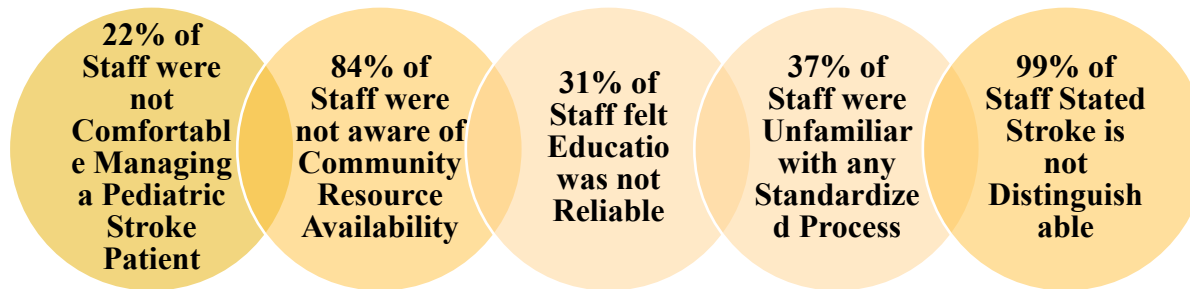
- **Project Results:**
 - *Patient Focus:*



Data Analysis

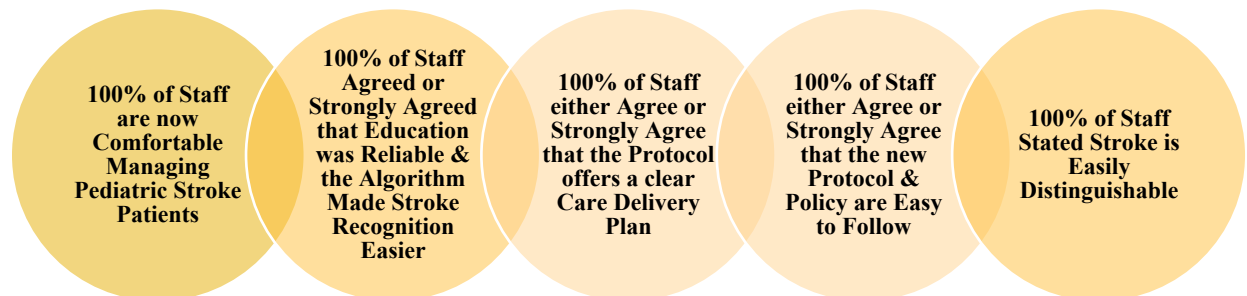
- **Project Results (continued):**

- *Staff Focused:*



Survey Results Prior to Education to Staff

Survey Results Post Education to Staff



Project Summary

- **Throughout the implementation of pediatric stroke protocols there has been reliance on leveraging leadership skills in an effort to achieve successful implementation of the project.**
- **The foundation of the project work was based on trust, integrity, relationship building, problem-solving, accessibility transparency, and dependability along with strong communication and collaboration.**
- **Key-stakeholders including the executive leadership team and providers, was imperative to discern the impact to the patients and the organization that not having standardized stroke protocols was having.**
- **Having the ability to admit 50% of pediatric stroke patients is a vast improvement with the remaining 50% going to a higher level-of-care for surgical intervention that we are unable to facilitate at this time.**
- **A sustainable process has emerged associated with standardized pediatric stroke care across all disciplines within the organization.**

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Questions?

