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Improving Stroke Documentation on a Stroke Unit

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Spring 2017

Abstract

The aim of this project is to improve adherence of stroke documentation per stroke protocols on a stroke unit at an acute hospital setting through nursing education and EPIC modifications. A comprehensive retrospective data collection was done to determine the inconsistencies of nursing documentation per organizational protocols. Firstly, a randomized sample of 163 stroke patients (Site 1 = 98; Site 2 = 65) was generated for retrospective data collection. For this project, the main focus was Site 1 (n = 98). The sample from Site 1 consisted of 4 types of stroke patients, which were patients who either received alteplase (TPA= 19); did not receive alteplase (NTPA= 34); had Intracerebral Hemorrhagic Stroke (ICH= 30); or were suspected of stroke/ Transient Ischemic Attack (TIA= 15). Next, stroke chart audits were done to determine whether or not the nursing documentation was consistent per stroke protocol. The goal of this retrospective data analysis was to recognize areas where there are charting inconsistencies; lacks of adherence to the organization's stroke protocols, and recommend interventions to improve nursing stroke documentation. Results from this retrospective data analysis demonstrate the need to educate nurses on the importance of accurate and consistent documentation along with the legal implications if non-compliant with standard protocols. In addition, there is a need to modify EPIC to enforce stroke protocols and increase nurses' compliance rates.

Improving Stroke Documentation on a Stroke Unit

Statement of the Problem

Accurate and consistent nursing documentation is essential for patients who have been diagnosed with a stroke to prevent declines in health conditions. A stroke occurs when blood circulation to the brain fails. Brain cells can die from decreased blood flow and leads to lack of oxygen. There are two categories of stroke: those caused by a blockage of blood flow and those caused by bleeding into the brain. According to the National Institute of Neurological Disorders and Stroke (2017), stroke ranks as the fourth leading killer in the United States for people over age 65 and the leading cause of disability. Each year approximately 795,000 Americans have a stroke, with about 160,000 dying from stroke-related causes.

Patients' electronic medical records (EMRs) are used for multiple purposes. EMRs are used for substantiating the health condition, illness, or presenting concern of a patient; communicating among health care professionals; recording the patient's response to care; auditing care for quality improvement, third-party payment, and governmental and regulatory purposes; conducting research; resolving competency, disability, guardianship, and other legal issues; and teaching healthcare professionals about caring for patients.

From a legal perspective, according Monarch (2007), documentation-related challenges arise when there is inattention to or inconsistency in recording. It is crucial to have the date, time and patient's name on each page of medical record; only sequential, factual information, even when deviations occur (such as when a medication or other treatment is given later than ordered); the time at which the assistance of other providers is requested; admission data and the patient's wishes with regarding to self- determination, using the patient's verbatim responses when possible; pain intensity, location, accompanying factors, the interventions performed, and the patient's response; steps taken to follow preadministration protocols or policies related to

blood, blood products, chemotherapeutic agents, and other high-risk infusion or medications; assessment data, the interventions performed, and the patient's responses, noting deviations from normal or expected findings and actions taken in light of those findings; interactions between the patient and other clinicians; steps taken to preserve the patient's privacy and to address any related concerns of the patient or family, including steps taken through the organization's chain of command; transfer times, modes of transfer, and patient status during and following transfer; completed treatments, procedures, and interventions, as well as those that have not been completed and the reason they were not completed; and the patient's response to medication administration.

Furthermore, to preserve the medical record, there are ways to keep the integrity of them such as interventions delineated in critical pathways, guidelines, policies, protocols, standards and care plans must be followed and documented. If a standard recommendation is not followed, the reasons for this must be documented; the patient's response to interventions and the clinician's response to a worsening condition indicator must be recorded promptly; and all attempts to contact other healthcare professionals must be documented, including the time of the attempt or contact (Monarch, 2007).

This project took place at an acute hospital setting stroke unit where nursing stroke documentation has been inconsistent and non-compliant per the organization's stroke protocols. Of the 98 stroke charts that were audited for this project, the inaccuracies and inconsistencies warrant for interventions for improvement. There are several questions to address and they are as follows: what are the contributing factors that have led nurses not to follow the organization's protocol? What will make it efficient for nurses to chart per protocol considering if time management is an issue? Do nurses understand the importance of accurate and consistent

documentation? Do nurses know the legal implications for the lack of adherence to proper documentation and to protocols? How would The Joint Commission, other state or federal regulatory departments or other healthcare providers know whether or not patients' doctors have been notified for vital signs or mNHSS scores out of parameters? And if healthcare providers acknowledged those vital signs and mNHSS scores out of parameters?

A Master of Science in Nursing and a Clinical Nurse Leader student will conduct a quality improvement project to identify the areas of inaccuracies and inconsistencies of nursing documentation using stroke audit tools on past stroke electronic medical records. Followed by, recommendations to improve the quality of stroke documentation and increase nurses' compliance to the organization's stroke protocols.

Rationale

Literature Review

A comprehensive literature review for this data collection project was conducted using CINAHL Complete and Cochrane Library databases. In both databases, an advanced search included key words such as 'nursing', 'documentation', 'liability', 'misconduct', 'quality', 'barriers', 'inconsistent', 'legal', 'implications', 'malpractice', and 'negligence' were used.

Nursing documentation is permanent to patients' medical records, and liability issues may arise. Negligence is a term referring to a deviation from the standard of care that a reasonable person would use in a particular set of circumstances. Malpractice is more specific; a deviation from a professional standard of care. To prove malpractice of negligence has occurred, the following four elements must be established: duty, breach of duty, causation, and damages. The need for accurate and consistent documentation is enforced in licensure statutes and regulations, well as by malpractice law. According to Hall (1996), "documentation must be objective, clear,

accurate, and complete for patient's condition and care." The lack of documentation or adherence to intervention can lead to an assumption that care was not given.

According to the American Nurses Association (2010), "adequate assessment is essential in guiding interventions and evaluating the effect of care." Assessment includes collecting, validating, and analyzing subjective and objective information about a patient's health status, which is necessary to continue quality of care. It is important that nursing assessments are communicated accurately and effectively in patients' records.

Nursing documentation is reported to take up to 50% of the nurses' time per shift (Gugerty et al. 2007). Documentation serves an essential purpose for communicating amongst healthcare providers for the continuity of care. The lack of quality in communication will contribute to the occurrence of adverse events in healthcare (The Joint Commission, 2012) and it will affect patient safety. According to Wilson et al (2012), nursing documentation is an indicator of quality nursing practice. It can also be used to predict mortality (Collins et al, 2013).

According to Jefferies, Johnson, and Griffiths (2010), quality nursing documentation meets seven criteria: (1) patient- centered, (2) contains the actual work of nursing, (3) reflects the nurses' clinical judgment, (4) is presented in a logical sequence, (5) is written in real time, (6) records variances in care and (7) fulfills legal requirements. The inadequacies of documentation can be due to challenges in nurses' individual characteristics and work environment (Cheevaksemsok et al, 2006; Taylor, 2003). Nursing and Midwifery Council (2002), states that record keeping promotes better communication between member of the primary healthcare team, accounts for care planning and delivery of treatment, and enables changes in the patient's condition to be detected.

Law requires the creation and maintenance of medical records, which is an important responsibility for health care providers. Documentation does not “interfere” with nursing; it is part of nursing and it is essential to comply with the standard of care which requires that the patient’s health status be communicated. A study exploring nursing documentation complexities identified six themes. According to Laitinen, Kaunonen, and Åstedt-Kurki (2010), three were related to documentation problems: (1) disruption of documentation, (2) incompleteness in charting, and (3) inappropriate charting. Three related factors included (1) limited nurse’s competence, motivation, and confidence; (2) ineffective nursing procedures; and (3) inadequate nursing auditing, supervision, and staff development. These issues demonstrate the need of a system approach to improve the quality of documentation.

Thoroddsen and Enforce (2007), state “an accurate medical record improves the quality of care through enhancing effective communication across the continuum of care for the patient, thus protecting the patient from potential harm.” Failure to maintain patients’ medical records according to standards can place the nurse in legal jeopardy if any legal body reviews the record because of an issue that occurred during hospitalization. According to Urquhart (2008), nursing documentation serves as the center of nursing activities and one of the important duties underscoring professional autonomy of the nurse. Failure to maintain standard documentation of nursing interventions to patients could be viewed as professional misconduct and will result nurses to face charges against their professional competency. It is important for nurses to know that medical records can be used as evidence in a complaint procedures and hearings. Nursing documentation is the primary source of evidence in investigations.

Cost Analysis

Chart audits have been found to be a cost-effective and an easy method that leads to the identification of specific areas of documentation compliance (Kinsman, 2004). Patient safety is the center of the importance of nursing documentation. Ballard (2002) states laws, rules, and standards include meeting educational requirements, maintaining competence in practice, and refraining from engaging in any acts of professional misconduct such as failing to document appropriately. Documentation aids for financial reimbursements for third party payers. There are legal issues that involve potential disciplinary action by the board of nursing against the nurse's license as the result of inadequate or falsified documentation.

According to the Center for Disease Control and Prevention (2016), strokes cost the United States an estimated \$33 billion each year. This total includes the cost of healthcare services, medicines to treat stroke, and missed days of work. A patient whose condition has declined due to the lack of documentation and communication could be costly to the organization. This will increase the length of stay at the hospital and the cost of supplies. If any trials require access to medical records for questioning during a patient's hospital stay and there are inquiries for the inaccuracies and inconsistencies, it can cost the healthcare organization.

Methodology

In order to improve the quality of nursing stroke documentation on a stroke unit, a retrospective data collection must be conducted to find areas of inconsistencies and inaccuracies on patients' electronic medical records that have been medically diagnosed with a stroke. A randomized sample list of 163 patients was generated. This sample consisted of 98 patients from Site 1 and 65 patients from Site 2. For this project, the main focus is Site 1 (n=98). Of these 98 patients, they had one of the following types of strokes: patient who received tPA (TPA= 19), patient who did not receive tPA (NTPA= 34), intracerebral hemorrhage (ICH=30), or patient suspected of stroke or transient ischemic attack (TIA = 15).

Four Stroke Audit Tools were created to reflect the organizations protocol per type of stroke and for efficiency. These audit tools include vital sign parameters per protocol, which doctors have to be notified and documented; vital signs frequencies, and neurological check items with frequencies per protocol (Appendix A, B, C, D, and E). After these audit tools were used for retrospective data collection since June 2016, they were then inserted as data points onto a database with variables reflecting the stroke audit tools on IBM SPSS, which is predictive analytic software that provides statistical analysis/reporting, manages data, and calculations.

Clinical Microsystem Assessment

Purpose

This 24 hospital- bed stroke unit is where treatment and rehabilitation are prescribed to patients' with acute stroke. Different groups of patients may respond differently with treatment given on a stroke unit. Stroke unit care is to provide optimal services and processes of care to stroke patients. It reduces the likelihood and disability of men and women of any age and with different stroke-related risk factors.

Patient Population

Patients who have been medically diagnosed with Ischemic Stroke, Transient Ischemic Attack, or Hemorrhagic stroke are admitted onto the unit. Most patients are transferred onto a stroke unit from the emergency department. Patients have major risk factors for stroke such as high blood pressure, diabetes, heart diseases, age, gender, race, and ethnicity, personal or family history of stroke, and / or brain aneurysms or arteriovenous malformations (AVMs). Other risk factors for stroke that are controllable include alcohol and illegal drug use, medical conditions (Sickle cell disease, vasculitis, and bleeding disorders), lack of physical activity, overweight, obesity, stress, depression, unhealthy cholesterol levels, unhealthy diet, and the use of nonsteroidal anti-inflammatory drugs.

Treatment depends on the type of stroke the patient is diagnosed with. Common medications that are prescribed are tissue plasminogen activator (tPA), anti-platelets, anti-coagulations, aspirin, labetalol, and clopidogrel. Common medical procedures are intra-arterial thrombolysis, aneurysm clipping, coil embolization, and arteriovenous malformation repair. Patients are often educated on heart-healthy lifestyle changes such as eating healthy, healthy weight, managing stress, physical activity and smoking cessation.

Professionals

This unit involves an interdisciplinary team that includes patient care technicians, nurses, nurse managers, nurse manager assistants, physical therapists, occupational therapists, speech therapists, physical medicine and rehabilitation doctors, dietitians/ nutritionists, cardiologists, neurologists, and pharmacists. For three times a week a physical therapist, occupational therapist, physical medicine and rehabilitation doctors, unit manager, and unit manager assistant meet for stroke rounds where they discuss about current stroke admissions, patients' current health status, and prognosis.

Processes

Shift huddles with the unit manager and nurses occur to talk about any safety concerns or any other topics that are pertinent prior to hand-offs. There is a discharge communication board for visual access. Nurses will know from hand off if they have a stroke patient. On the unit it is a 4:1 patient to nurse ratio. Patient care technicians can be scarce due to an insufficient amount of them. If there is an identified stroke patient on the unit, the nurse will part take in rounds along with the interdisciplinary team. If there is a new stroke patient a physical medicine and rehabilitation doctor will visit to educate them on the type of stroke they had, lifestyle

modifications, and provide an opportunity to ask any questions. Nurses have protocols to follow depending on the type of the stroke the patient had.

Patterns

There is a huddle before the next shift to discuss important topics that relate to both staff and patients. It is also an opportunity for the staff to discuss any safety issues and express any concerns or comments. The fall rates are often given to promote safety on the unit. It is also emphasized to use lift machines to prevent any work injuries. It is encouraged for the staff to ask if they have any questions or concerns to the unit manager. Nursing staff will introduce themselves to their patients, pass out medications, provide treatment, educate on signs and symptoms of stroke, lifestyle modifications, and medications. Upon discharge, nurses continue to educate and emphasize the importance of detecting future strokes and risk factors. New stroke admissions come from the emergency department. When stroke patients become critically ill, they are transferred to the intensive care unit where meticulous care is given for their severe condition.

Timeline

A Gantt chart (Appendix F) was created as a timeline to monitor the progress of the project and to keep track of tasks. In the month of March 2017, there was meeting with the stroke coordinator and stroke unit manager; the Microsystem was assessed; and another meeting with the stroke coordinator was held to review the organization's stroke protocols. By mid- March 2017, a randomized sample list of stroke patients was given. The remaining days of March 2017 were devoted to literature review. By the first week of April 2017, stroke audit tools were created to collect data. After the tools were finalized, chart auditing began and continued through mid-April 2017. Literature review was also done during the time of chart auditing. After the data collection was finished, a database was created on SPSS; data entry and data analysis began in

the remaining days of April 2017. Data analysis continued on to the first few days of May 2017 along with the creation of a data analysis summary, and a meeting with the stroke coordinator was held to present findings and interventions.

Nursing Relevance

Educating nurses on a stroke unit about the importance of accurate and consistent documentation along with the legal implications if non compliant will help to improve the quality of care, promote patient safety, and improve communication between healthcare providers. Nurses will realize that frequent assessments and documentation can help with early detection of potential declination in patients' condition, which can prevent permanent disability. Nursing documentation is the accountability and responsibility of nurses. By increasing the compliance of nursing documentation, it will reflect the quality of care in the healthcare organization.

Summary Report

Root Cause Analysis

The contributing factors pertaining to inconsistent nursing documentation and lack of adherence to the healthcare organization's stroke protocol is the lack of knowledge of legal implications, and the importance of accurate and consistent nursing documentation. Are nurses aware of which stroke protocol the patient has been given? Do nurses understand what the stroke protocols are, the vital sign parameters, and the importance of notifying the doctor if the vital signs are out of parameters and if their mNHSS score is 2 points or greater? Nurses play a major role due to the fact that they are consistently giving bedside care and are accountable for documentation. It is a challenge for the nurse to remember what needs to be charted and when. EPIC can be used to if modified accordingly to alert nurses when vital signs and mNHSS scores

are out of parameters, clearly able to identify the type of stroke the patient as been diagnosed with, and which protocol has be activated for the nurse to follow.

Redesign of the Process

During the retrospective data collection, there were no revisions of the stroke audit tools (Appendix A, B, C, D, and E). These tools were essential to audit charts efficiently and in an organized manner. The organization's stroke protocols were used as references to design the stroke audit tools.

Proposed Implementations

Proposed implementations consisted of nurse education and EPIC modifications. Nurses on the stroke unit would be educated about the importance of accurate and consistent documentation along with the legal implications if non-compliant. In addition, EPIC modifications will include color coordination of banners according to the type of stroke. This will allow healthcare providers to distinguish between different types of stroke patients. If doctors are able to check off which type of stroke a patient has been diagnosed, EPIC will default to alert nurses and doctors of vital signs and mNHSS scores that are out of parameters. EPIC will generate a pop-up on the EMR where the nurses or doctors will have to acknowledge the items that are out of parameters and will ask them whether or not the patient's doctor was notified. A simple click on yes or no, along with the documentation of time and date the doctor was notified will successfully allow the healthcare providers to close the pop-up and continue to access the patient's EMR.

To improve nursing compliance, during huddles unit managers will enforce the importance of accuracy and consistent documentation. Unit managers will be able to generate a spreadsheet that reflects a current list of stroke patients, type of stroke diagnosis, active protocol

assigned, number of times the vital signs have been out of parameters, number of times the mNHSS was greater than 2 points, and the number of times doctors have been notified or not.

Results

The retrospective data collection findings reflect the lack of adherence to all four organization's stroke protocols. When vital signs were out of parameters, the patients' doctors were not notified. Neurological checks (Pupil assessment and mNHSS) and vital signs were assessed infrequently and not done according to protocol. Per protocol, the doctor has to be notified for mNHSS score that increases 2 or more points. Findings revealed there were patients with a score of two or greater on the mNHSS and their doctors was not notified. The neurological assessments were found missing on some of the stroke patients' EMRs for the nurses to further assess and document. When assessing patient nursing documentation, nurses might have or might have not performed these activities. For the purposes of this project, it not documented to follow the legal notion. It will be assumed documentation was not completed.

Out of the patients who received tPA (TPA= 19), 15 out of 19 (88%) of patients' blood pressures were not checked within five minutes after administration of labetalol or an antihypertensive medication. After the administration of alteplase (tPA), the protocol calls for blood pressure to be check every 15 minutes x 2 hours, every 30 minutes x 6 hours, and every one hour x first 24 hours. Findings revealed 16 out of 19 (84%) TPA stroke patients had their blood pressure checked every 15 minutes x 2 hours; 13 out of 19 (68%) had their blood pressure checked every 30 minutes x 6 hours; and 17 out of 19 (89%) had their blood pressure checked every one hour x first 24 hours. Not all TPA patients' blood pressure were checked per protocol after the administration of alteplase.

Vital signs were not assessed per the organization's unit protocol for the patients who received tPA. Out of 8 of 19 (42%) TPA patients' vital signs were not frequently assessed per

protocol (every four hours). There were many vital signs (except for temperature $< 35\text{C}/ 95\text{F}$) that were found out of parameters and the doctor was not notified. Out of 19 TPA patients, eight had a systolic blood pressure (SBP) > 180 and for all 8, the doctor was not notified; 9 had SBP < 105 and for all 9, the doctor was not notified; 13 had diastolic blood pressure (DBP) > 105 and for all 13, the doctor was not notified; 10 had a DBP < 50 and for all 10, the doctor was not notified; 2 had a temperature $> 38\text{C}/ 100.4\text{F}$ and for all 2, the doctor was not notified. 5 had a heart rate (HR) > 120 , and for all 5, the doctor was not notified; 3 had HR < 50 and for all 3, the doctor was not notified; 10 had a respiratory rate (RR) > 26 , and for all 10, the doctor was not notified; 1 had a RR < 8 and for that one, the doctor was not notified. See Appendix G for TPA patients results.

Moreover, out of the 19 TPA patients, 8 patients' pupil assessments (42%) were not assessed per protocol. Seven of the total of TPA patients (37%), their mNHSS was not assessed per protocol. The doctor was not notified for the six patients who had an mNHSS increase of 2 points or more. Only three patients' doctors were notified for having an mNHSS increase of 2 points or more. Ten patients did not require their doctors to be notified because they did not have an increase of 2 points or more on their mNHSS assessment. See Appendix H for TPA patients neurological check results.

Out of the patients who did not receive tPA (NTPA = 34), 24 NTPA patients (71%) did not have their vital signs checked per protocol (every 4 hours). Vitals signs (except for temperature and RR < 8) were found to be out of parameters during the chart audit. Out of 34 NTPA patients, 5 had SBP > 200 and for all 5, the doctor was not notified; 14 had SBP < 105 and for all 14, the doctor was not notified; 10 had DBP > 120 , and for all 10, the doctor was not notified; 5 had HR > 130 and for all 5, the doctor was not notified; 4 had HR < 50 and for 3, the

doctor was not notified; and 11 had RR > 26 and for all 11, the doctor was not notified. See Appendix I for NTPA patients results.

As for neurological checks for NTPA patients, 22 out of 34 (65%) pupil assessments were not assessed per protocol. Four pupil assessments were missing on the patients' EMRs. Out of 34 NTPA patients, 21 mNHISS (61%) were not assessed per protocol. Of the NTPA total, 12 NTPA patients' doctors were not notified for having an increase of 2 points or more on the mNHISS. Twenty NTPA patients did not need to have the doctor notified because they did not have an increase of 2 points or more on their mNHISS assessment. Two mNHISS assessments were found missing on patients' EMRs. See Appendix J for NTPA patients neurological checks results.

Out of the patients who were medically diagnosed with Intracerebral Hemorrhage (ICH=30), 24 ICH patients' (90%) vital signs were not assessed frequently per protocol (every 4 hours). Out of 30 ICH patients, 28 patients' (93%) blood pressures were not assessed per protocol (every hour). Findings also revealed there were vital signs that were out of parameters and no evidence that the patients' doctors were notified. Of the 30 ICH patients, 27 had SBP > 140 and for all 26, the doctor was not notified; 26 had SBP < 110 and for all 26, the doctor was not notified; 10 had DBP > 110 and for all 10, the doctor was not notified; 12 had DBP < 50 and for all 12, the doctor was not notified; 5 had a temperature > 38C/ 100.4F and for 3, the doctor was not notified; 1 had temperature < 35C/ 95F and for that one, the doctor was not notified; 4 had a HR > 130 and for all 4, the doctor was not notified; 4 had a HR < 50 and for all 4, the doctor was not notified; 13 had a RR > 26 and for all 13, the doctor was not notified; and one had a RR < 8 and for that one, the doctor was not notified. See Appendix K for ICH patients results.

The neurological checks for ICH patients showed that 24 out of 30 (80%) pupil assessments were not assessed per protocol. One pupil assessment was missing. For the mNHIS assessment, 20 out of 30 (67%) were not assessed per protocol. Three mNHIS assessments were missing. Only four ICH patients' doctors were notified for having an increase of 2 points or more on the mNHIS. Twelve ICH patients' doctors were not notified for having an increase of 2 points or more on the mNHIS. Eleven ICH patients' doctors did not have to be notified because there were no increases of 2 points or more on their mNHIS assessment. All 30 ICH patients Glasgow Coma Scale were not assessed per protocol. See Appendix L for ICH neurological checks results.

Out of all suspected stroke or transient stroke patients (TIA = 15), 13 TIA patients' vital signs (87%) were not assessed frequently per protocol. All TIA patients (100%) did not have their blood pressure checked per protocol (every hour). Vital signs were found to be out of parameters (except for DBP > 105, temperature > 38C/ 100, temperature < 35C/ 95C, HR < 50, and RR < 10). Out of 15 TIA patients, one had SBP > 185, and for that one, the doctor was not notified; 5 had SBP < 110 and for all 5, the doctor was not notified; 6 had DBP < 50 and for all 6, the doctor was not notified; 1 had a HR > 130 and for that one, the doctor was not notified; and 9 had a RR > 20 and for all 9, the doctor was not notified. See Appendix M for TIA patients results.

Furthermore, TIA neurological checks revealed that 11 of 15 TIA patients (92%) the pupil assessments were not assessed per protocol. Three pupil assessments were missing. For the mNHIS, 8 of 15 (57%) TIA patients were not assessed per protocol. One mNHIS was missing. Three TIA patients' doctors were not notified for having an increase of 2 points or more on their mNHIS assessment. Eleven TIA patients did not need to have their doctors notified because

there were no increases of 2 points or more on their mNHSS assessment. See Appendix N for TIA patients neurological checks results.

Evaluation

The MSN/CNL student was well supported by nurses, unit managers, unit assistant, managers, and stroke coordinator. Meetings and emails were entailed to discuss the purpose, status, and findings of the project. It was important for the organization to determine the results of identifying the gaps of inconsistencies and inaccuracies in their nursing documentation. The leaders understand the importance of consistent and accurate nursing documentation, legal implications, and the need to adhere to organization's protocols.

This project's results would benefit for future efforts to improve stroke nursing documentation in healthcare organizations. Future improvements should emphasize the importance of consistent and accurate nursing documentation and legal implications through educating the nurses. As well as modifying EPIC to create a system that will help to alert the healthcare providers on important items that need to be acknowledged to prevent patient harm and miscommunication. Increasing nursing compliance to document per protocol will reflect the quality of care given at the organization.

Conclusion

The healthcare organization would benefit from an in-service education that would focus on case scenarios to educate on the importance of accurate and consistent nursing documentation and the legal implications if not compliant with the protocols and code of ethics. By doing so, it will reflect the importance of patient safety and quality of care at the healthcare organization. It is essential to prevent permanent disability and take cautious measures to assess and detect for any signs of decline in patients' conditions. With the findings and recommendations generated from this retrospective data collection, there is hope that the healthcare organization can take into

considerations the recommendations to make changes for the safety of the patients and for the quality of care nurses provide.

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Appendix A

Stroke Chart Audit Tool: TI Stroke Patient with TPA (TPA)

Date of Audit:

Chart: #

MRN:

Patient's Initials:

Alteplase?:

Date given:

Time given:

BP Checked:

-Every 15 mins x 2 hours:

-Every 30 mins x 6 hours:

-Every 1 hour for the first 24 hours:

Was Alteplase re-started?

Labetalol?:

Date given:

Time given:

-BP Checked within 5 minutes of administration:

How often are vital signs checked?

-Per protocol (q 4 hours)

-Other?

Vital Signs	Out of Parameters? Yes or No	Doctor Notified? Yes or No	Dates and Times VS Out of Parameters
BP			
SBP >180			
<105			
DBP >105			
< 50			
Temp			
>38C/100.4F			
<35C/ 95F			
HR			
>120			
<50			
RR			
>26			
<8			

Neuro Checks:

- Pupil Assessments: Completed / Partial / Uncompleted - PP?
- mNHSS: Completed / Partial / Uncompleted
 - Frequently done in correlation with BP?
 - Doctor notified increase of two points or more?

Appendix B

Stroke Chart Audit Tool: Ischemic Stroke Patient Not Receiving Alteplase (NTPA)

Date of Audit:
 Chart: #
 MRN:
 Patient's Initials:
 Vital Signs:
 Per Routine? Q 4 hrs

Vital Signs	Out of Parameters? Yes or No	Doctor Notified? Yes or No	Dates and Times VS Out of Parameters
BP			
SBP >200			
<105			
DBP >120			
< 50			
Temp			
>38C/100.4F			
<35C/ 95F			
HR			
>130			
<50			
RR			
>26			
<8			

Neuro Checks:

- Pupil Assessments (Size and Reactivity) : Completed / Partial / Uncompleted
 - Q 4 hrs
- mNHSS: Completed / Partial / Uncompleted
 - Minimum frequency of Q 4 hrs
 - Doctor notified increase of two points or more?

Appendix C

Stroke Chart Audit Tool: Intracerebral Hemorrhage (ICH)

(Intraventricular, Intraparenchymal, or Subarachnoid Hemorrhages)

NOT FOR SUBDURAL OR EPIDURAL HEMATOMA PATIENTS

Date of Audit:

Chart: #

MRN:

Patient's Initials:

Vital Signs:

Per Routine?

Blood Pressure: Q 1 hr?

Vital Signs	Out of Parameters? Yes or No	Doctor Notified? Yes or No	Dates and Times VS Out of Parameters
BP			
SBP >140			
<110			
DBP >110			
< 50			
Temp			
>38C/100.4F			
<35C/ 95F			
HR			
>130			
<50			
RR			
>26			
<8			

Neuro Checks: ,

- Pupil Assessments (Size and Reactivity) : Completed / Partial / Uncompleted
 - Q 1 hr x 24 hours, then Q 4 hours
- mNHSS: Completed / Partial / Uncompleted
 - Minimum frequency of Q 4 hours
 - Doctor notified increase of two points or more?
- Glasgow Coma Scale:
 - Q 1 hour x 24 hours, then Q 4 hours

Appendix D

Stroke Chart Audit Tool: Intracerebral Hemorrhage (ICH)

(Subdural Hematoma Patients)

Date of Audit:

Chart: #

MRN:

Patient's Initials:

Vital Signs:

Per Routine?

Blood Pressure: Q 1 hr?

Vital Signs	Out of Parameters? Yes or No	Doctor Notified? Yes or No	Dates and Times VS Out of Parameters
BP			
SBP >140			
<110			
DBP >110			
< 50			
Temp			
>38C/100.4F			
<35C/ 95F			
HR			
>130			
<50			
RR			
>26			
<8			

Neuro Checks: ,

- Pupil Assessments (Size and Reactivity) : Completed / Partial / Uncompleted

- Q 1 hr x 24 hours, then Q 4 hours

mNHISS: Completed / Partial / Uncompleted

- Minimum frequency of Q 4 hours
 - Doctor notified increase of two points or more?

Glasgow Coma Scale:

- Q 1 hour x 24 hours, then Q 4 hours

Appendix E

Stroke Chart Audit Tool: All Suspected Stroke or TIA Patients (TIA)

Date of Audit:

Chart: #

MRN:

Patient's Initials:

Vital Signs:

Per Routine?

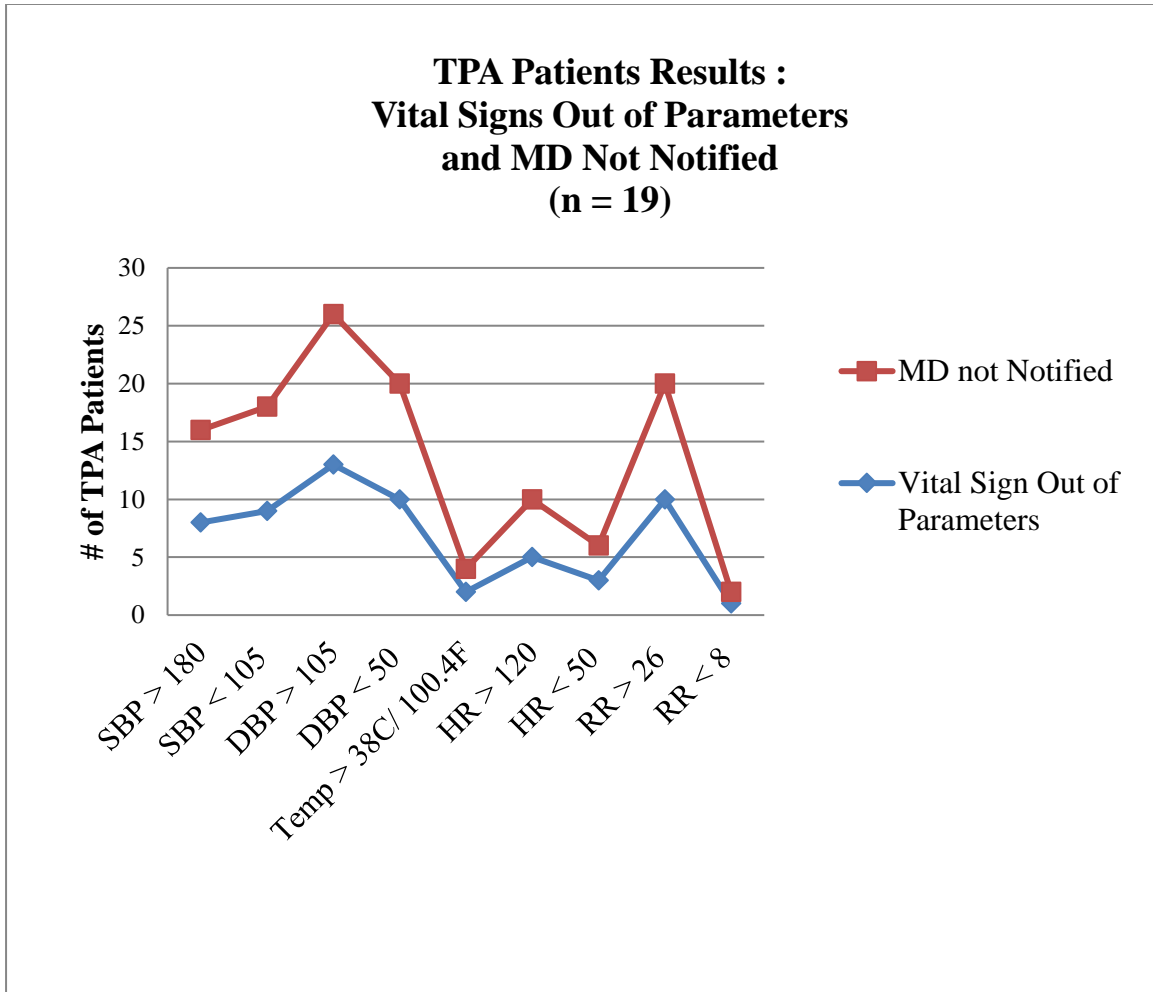
Blood Pressure: Q 1 hr?

Vital Signs	Out of Parameters? Yes or No	Doctor Notified? Yes or No	Dates and Times VS Out of Parameters
BP			
SBP >185			
<110			
DBP >105			
< 50			
Temp			
>38C/100.4F			
<35C/ 95F			
HR			
>130			
<50			
RR			
>20			
<10			

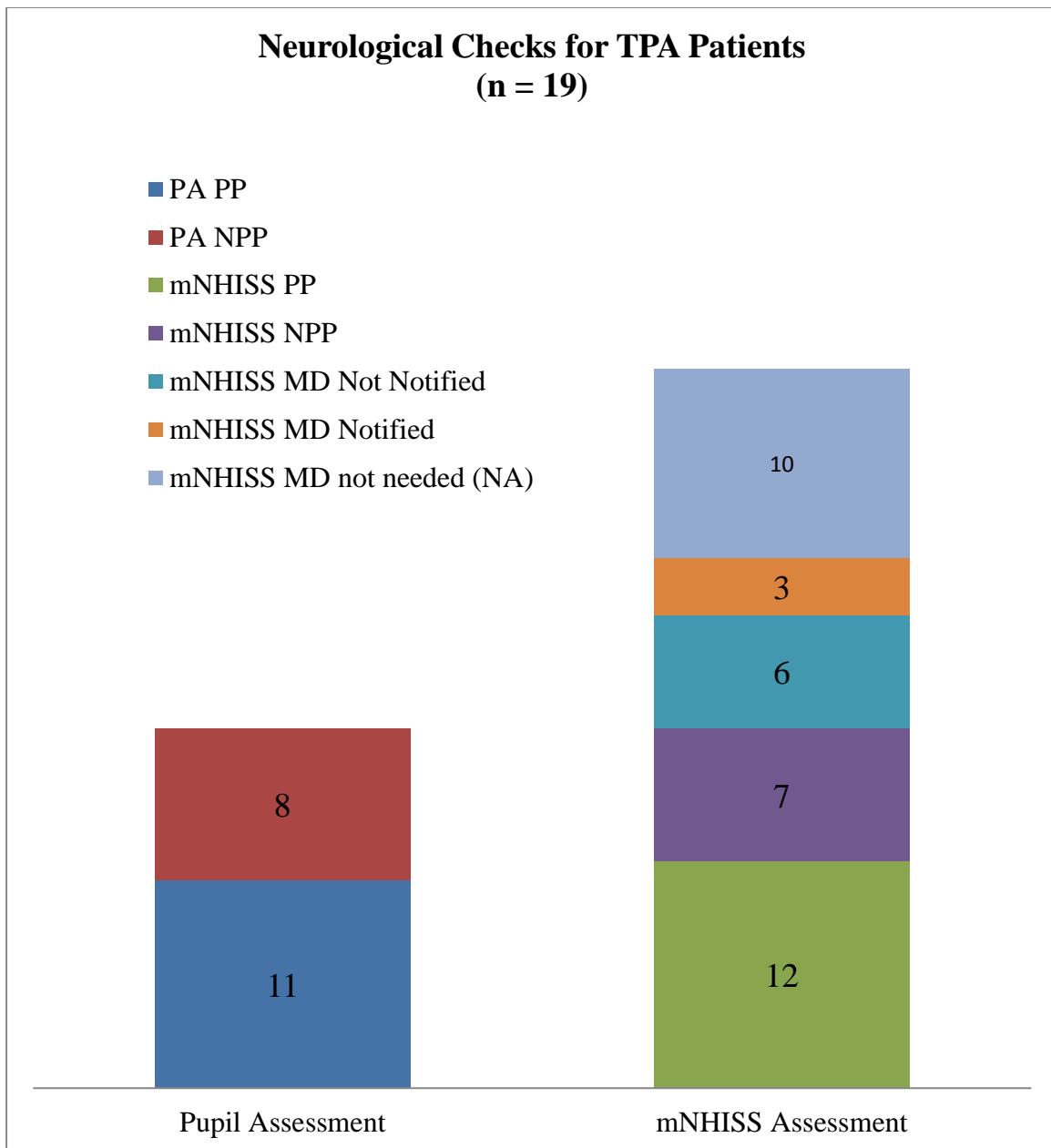
Neuro Checks: ,

- Pupil Assessments (Size and Reactivity) : Completed / Partial / Uncompleted
 - Q 4 hours
- mNHSS: Completed / Partial / Uncompleted
 - Minimum frequency of Q 4 hours
 - Doctor notified increase of two points or more?

Appendix G

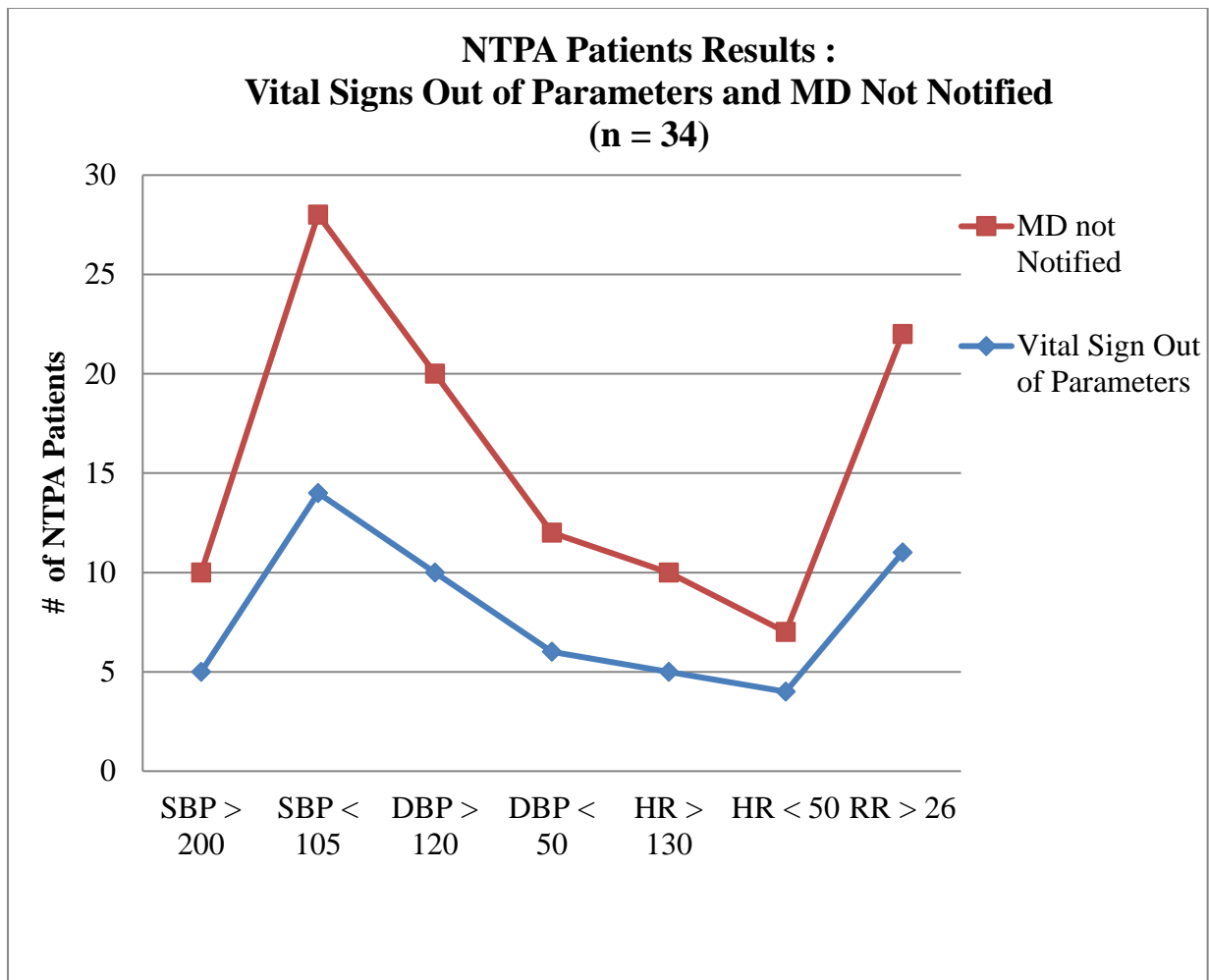


Appendix H

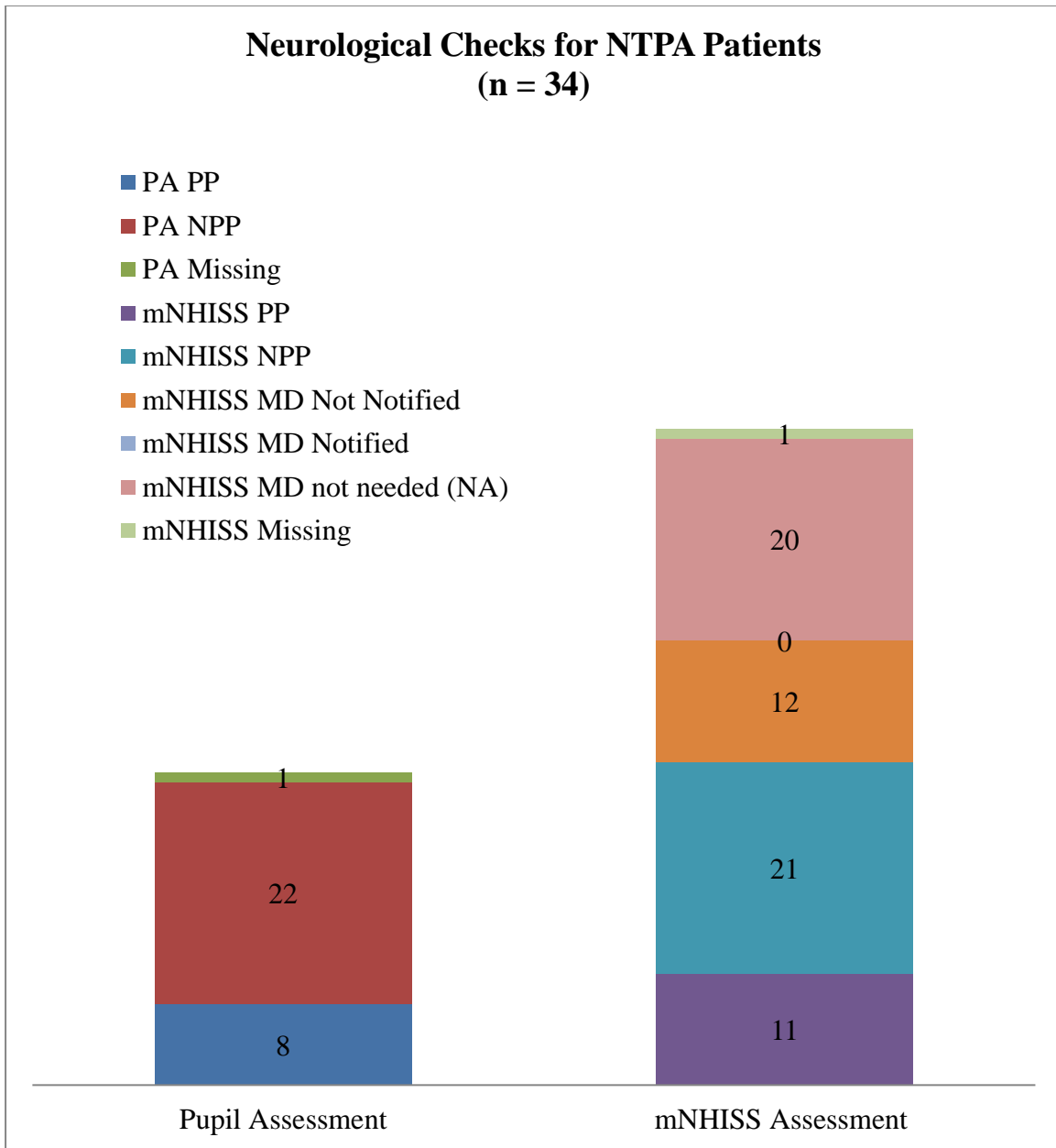


PA: Pupil Assessment; PP: Per Protocol; NPP: Not Per Protocol; MD: doctor; and NA: Not Applicable

Appendix I

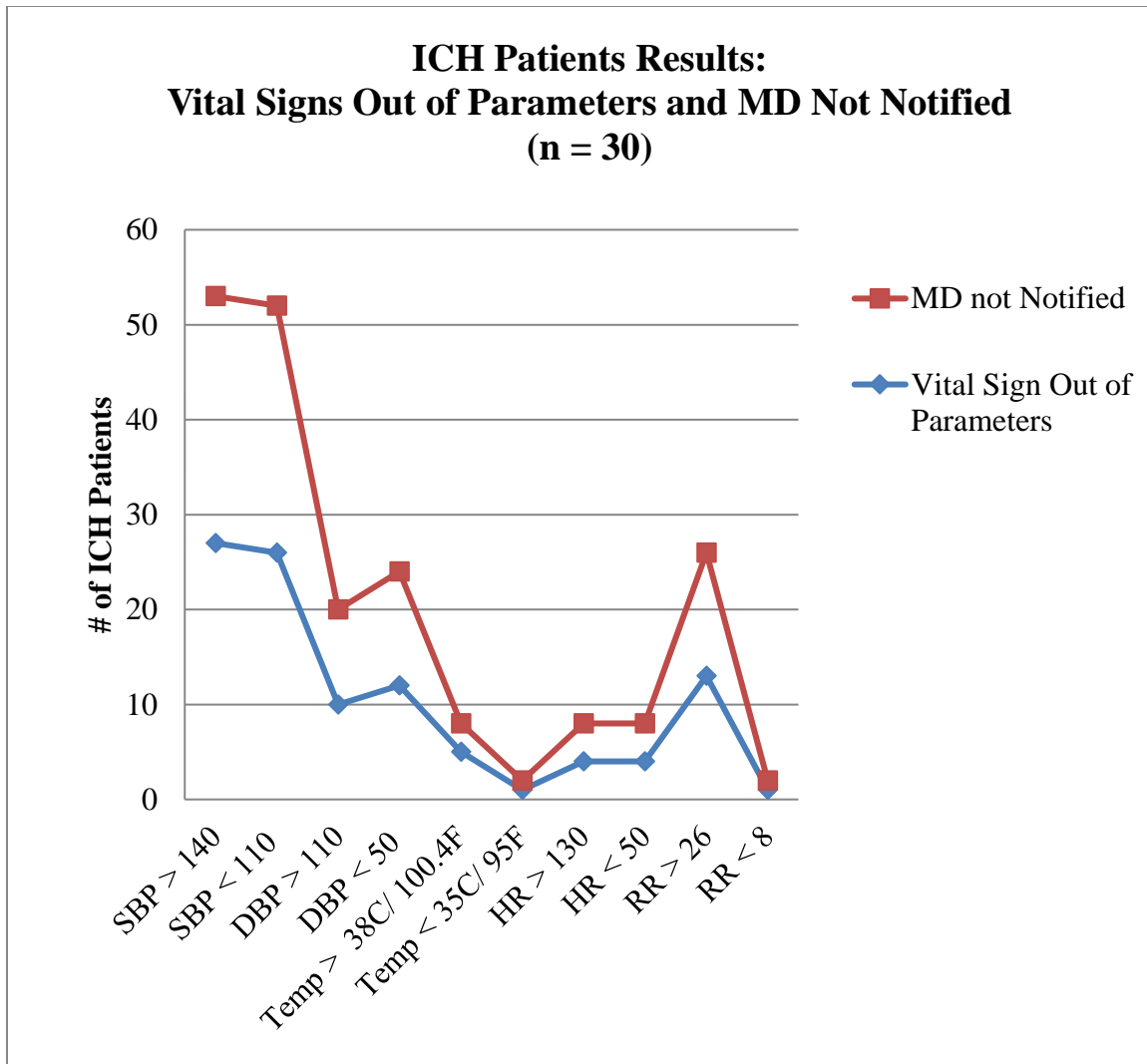


Appendix J

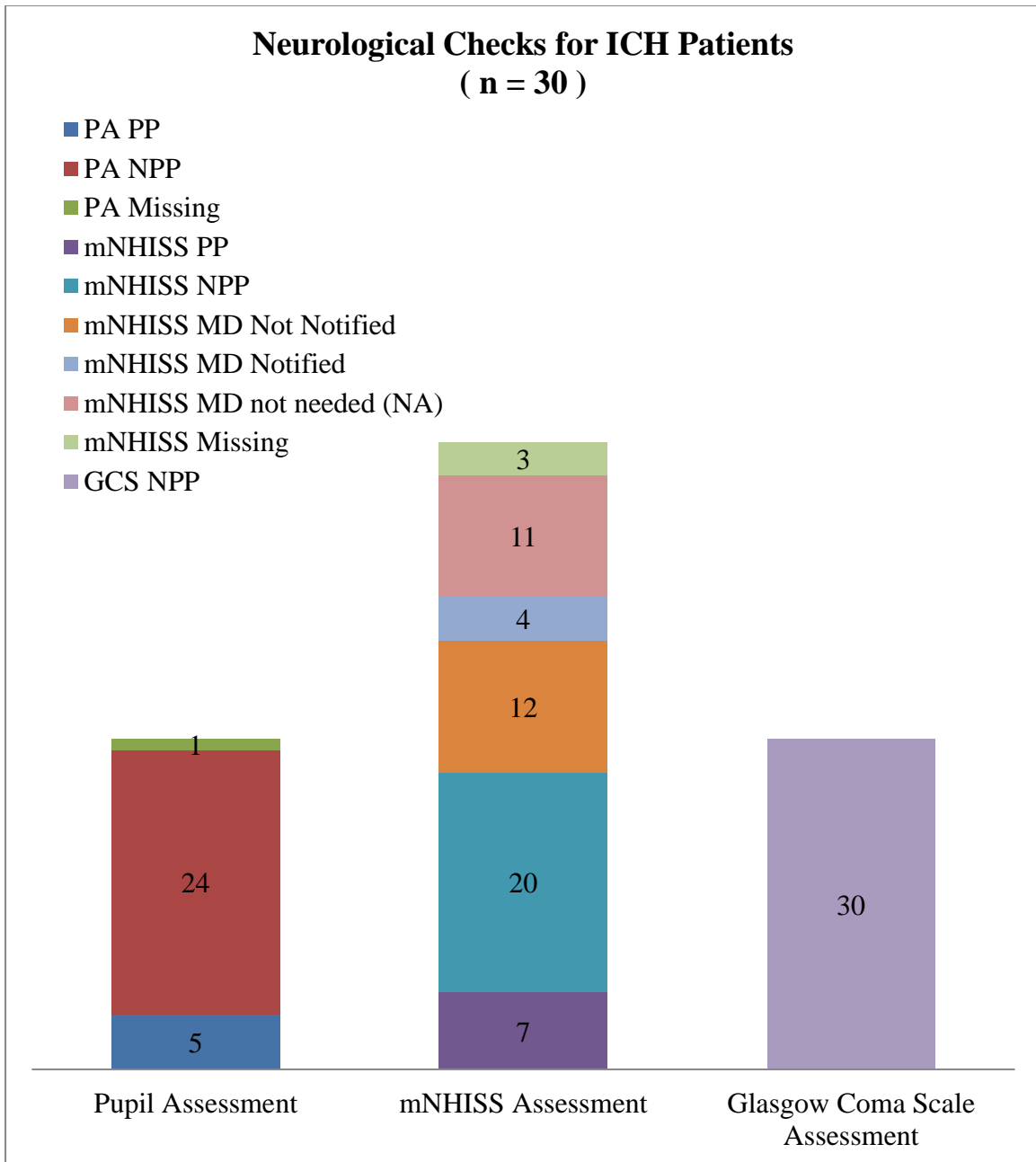


PA: Pupil Assessment; PP: Per Protocol; NPP: Not Per Protocol; MD: doctor; and NA: Not Applicable

Appendix K

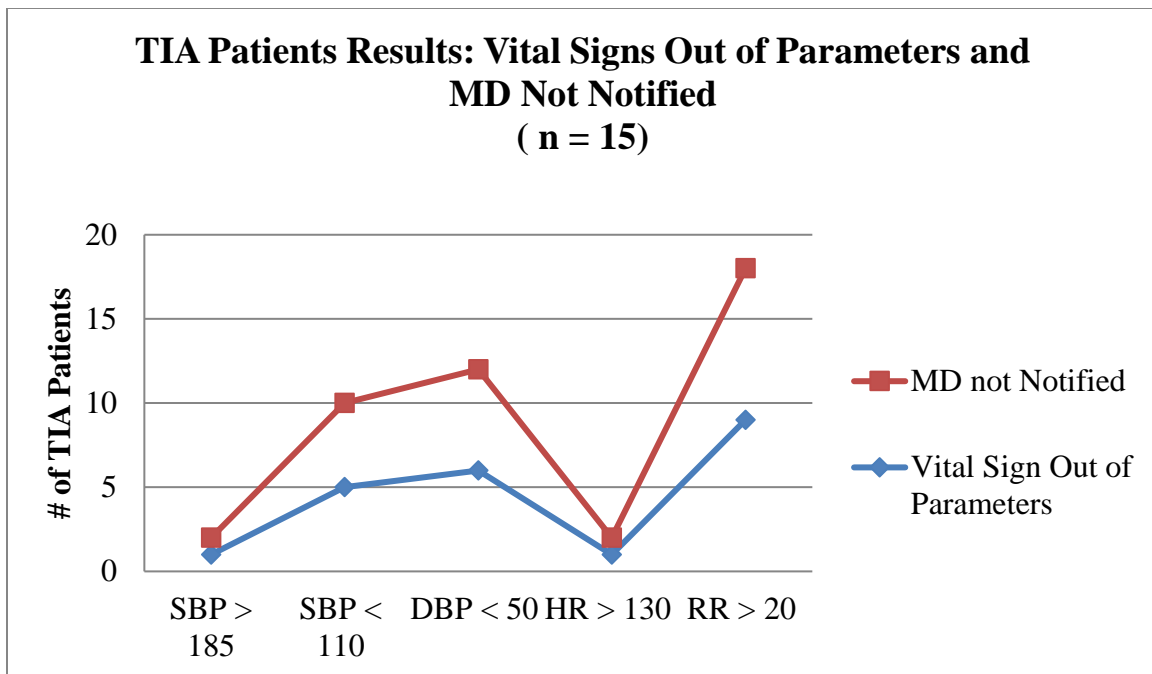


Appendix L

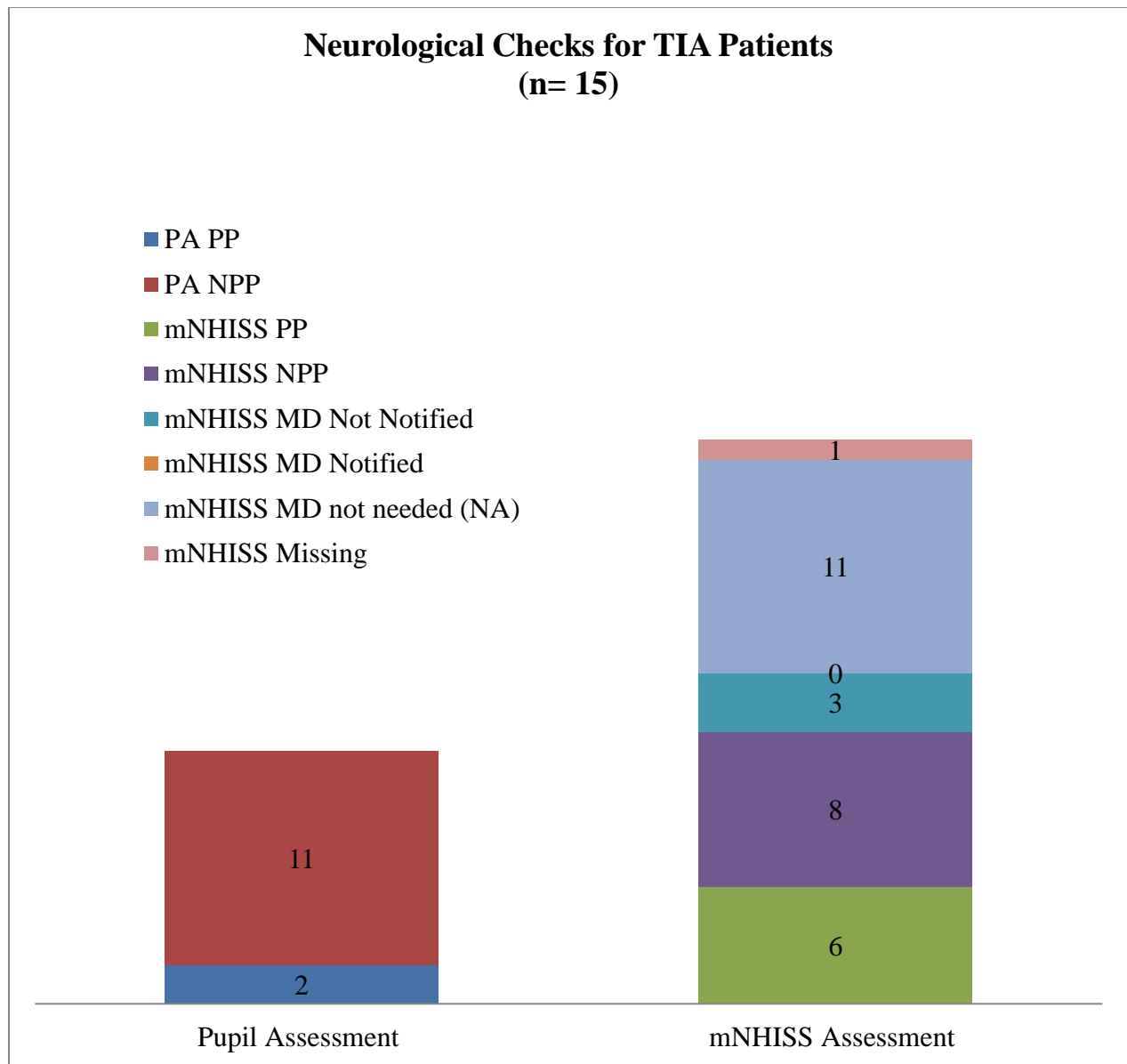


PA: Pupil Assessment; PP: Per Protocol; NPP: Not Per Protocol; MD: doctor; NA: Not Applicable; and GCS: Glasgow Coma Scale

Appendix M



Appendix N



PA: Pupil Assessment; PP: Per Protocol; NPP: Not Per Protocol; MD: doctor; NA: and Not Applicable.