Seizure Precautions for Pediatric Patients admitted for Video EEG monitoring or Seizure Management at an Urban Academic Medical Center

Alyssa Vilda BSN, RN, CPN, CPHON, Ashley Moreta MSN, RN, CPN, Jacquelyn Marzigliano, MSN, RN
Hassenfeld Children's Hospital at NYU Langone Health

Introduction

- At a designated Level 4 Epilepsy Center, emergency management is of the utmost importance.
- Treatment for convulsive seizures should start at 5 minutes and for absence, or focal, seizures with change in consciousness should start between 10 to 15 minutes (Kazl & LaJoie, 2020).
- Proper seizure precautions can prevent status epilepticus, which if not treated promptly, can adversely impact a child's developing brain (Pilgrim et al., 2023).
- Emergency bedside equipment must include suction supplies, oxygen source and delivery equipment, and appropriate bag-valve mask (Woten et al., 2023).

Purpose

- The purpose of this QI project was to increase consistency of correct seizure precautions on an acute pediatric unit, with a goal of 80% compliance.
- Another purpose was to eliminate old unit practice standards of using unmeasurable oxygenation, like blow-by, and implement best practice of utilizing quantifiable sources of oxygenation, like nasal cannula or non-rebreather mask.

Method

- The lean six sigma steps were used for this QI project.
- Inconsistency of complete and correct equipment set up was quantified utilizing the auditing tool.
- This QI project took approximately 8 months to complete.
- Results were measured by comparing audit data before and after education and interventions were made to unit practice emergency equipment setup.
- This was done by creating a video simulation and seizure safety sheet with a clinical pathway.
- We created a seizure precaution auditing tool to ensure all patient rooms are equipped with the necessary resources for epilepsy care before and after the intervention.
- This enhances patient safety by yielding measurable data about daily practices and increases staff accountability.

Implementation

- Pre-intervention data showed the prevalence of the issue with previous unit practice.
- The initial intention of this project was to create a live simulation to teach proper safety precautions, focusing on the delay in care if proper emergency seizure equipment is not set-up. However, barriers encountered included lack of access to mannequins, lack of dedicated time while on a high acuity unit, and inclusion of a seizure simulation in annual competency class.
- A video simulation was created to provide education to nursing staff, however, time constraints still existed. Results were not as high as the project's goal. Sometimes, the research process includes the need to adjust methods to achieve results.
- A seizure safety sheet was then created outlining the required safety equipment to be set-up and was posted in each epilepsy patient's room (see figure 2)..
- A clinical pathway for decision making was also created on the back of the sheet for reference and easy accessibility (see below).

Clinical Pathway

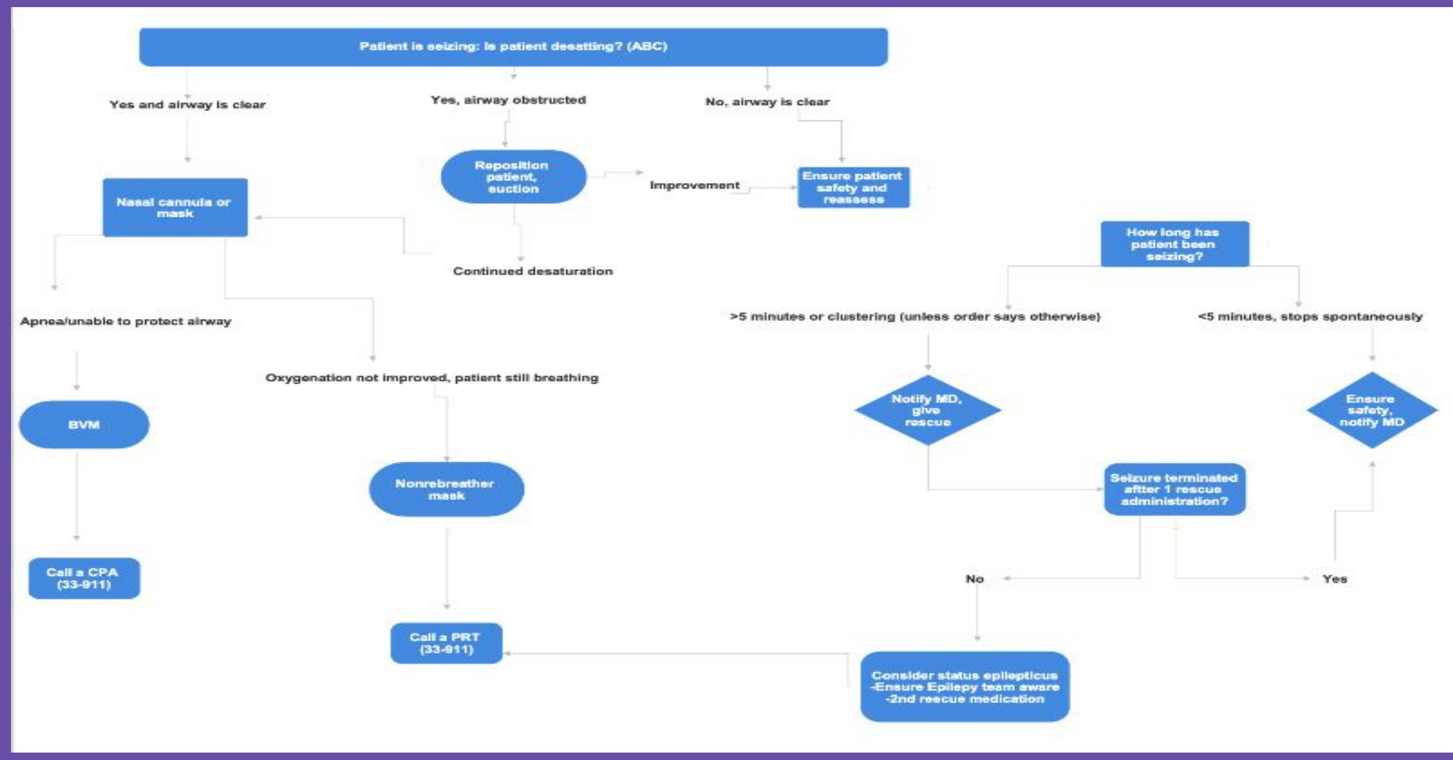
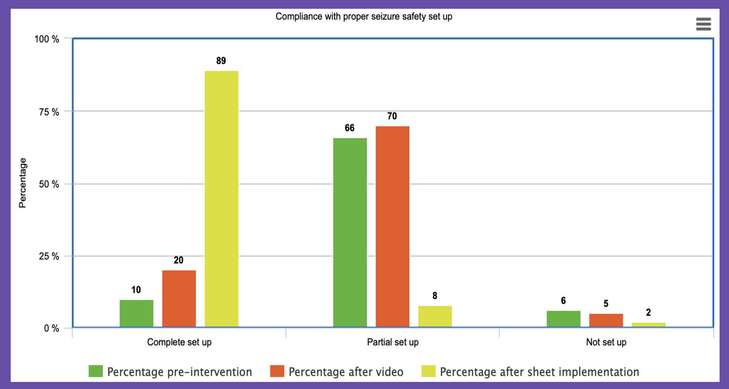


Figure 1



Results

- Although there was an increase in complete proper safety precaution implementation after the video simulation, compliance was greatly improved after implementation of the seizure safety sheet and education was provided for the clinical decision making pathway.
- Data collected from the pre and post education and interventions audits can be seen in figure 1 on the left.

Figure 2

HASSENFELD CHILDREN'S HOSPITAL AT NYU LANGONE

Patient Name: _____
Weight: ____kg

Goal of Admission (Circle): Med adjustment Rule out Presurgical evaluation New onset Febrile Capture/quantify/characterize

Seizure Presentation
1. _____ 3. _____
2. _____ 4. _____

Baseline Neurological/Behavioral Status: _____

Ensure set up, functional, and available each shift!!

1. Nasal cannula/mask/nonrebreather
2. Suction
3. O2 probes
4. BVM
5. Rescue medication ordered

Additional safety precautions

For all higher risk patients:
- ☐ IV access in place

If higher risk for falls/drop seizures/history of falls:
- ☐ Fall mat
- ☐ Bathroom with assistance
- ☐ 1:1 (If patient is alone)

If seizure has significant motor involvement:
- ☐ Side rails padded

Seizure History

PICU + / -
Intubation + / -
Status Epilepticus + / -
Cyanosis + / -
Rescue + / -
Date filled out _____
RN Initials _____

Conclusion

- The emergency seizure sheet is an effective intervention in decreasing care delays for patients with epilepsy.
- It promotes patient safety, collaboration among the medical team, and is well received by nursing staff, patients, and families.
- Its effectiveness here at a top hospital for neurology, demonstrates it is applicable to other institutions and units.

References

Haut, S., Seinfeld, S., Pellock, J. (2016). Benzodiazepine use in seizure emergencies: A systematic review. Epilepsy & Behavior, 62. 109-117. https://doi.org/10.1016/j.yebeh.2016.07.018

Hill, C. Parikh, A., Ellis, C., Myers, J. Litt, B. (2017) Timing is everything: Where status epilepticus treatment fails. Annals of Neurology, 82 (2). 155-165. https://doi.org/10.1002/ana.24986

Kazl, C., & LaJoie, J. (2020). Emergency seizure management. *Current problems in pediatric and adolescent health care*, *50*(11), 100892. https://doi.org/10.1016/j.cppeds.2020.100892

Stredny, C, Abend, N, Loddenkemper, T. (2018). Towards acute pediatric status epilepticus intervention teams: Do we need "Seizure Codes?". Seizure, 58, 133-140. https://doi.org/10.1016/j.seizure.2018.04.011