Increasing Nurse confidence and knowledge with Pupillometers & Pupil Assessments

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Introduction & Background

- ☐ The pupillary examination is a key assessment performed during neurological examinations.
- ☐ Prior research has documented that health care professionals are inconsistent and inaccurate with pupil assessments thus, leading to secondary brain injuries.
- ☐ The use of Pupillometer devices in the care of head injured patients has remained suboptimal.
- ☐ A traumatic brain injury (TBI) is a leading cause of death and disability worldwide and accounts for around 30% of all injury-related deaths
- ☐ Limited research exists on nurses' confidence and experiences with the use of technology in providing care in healthcare settings
- ☐ No studies to date have been found that examine nurse confidence and knowledge with utilizing Pupillometers.

Aims & Purpose

Purpose: Increase nurse confidence and knowledge with utilizing a pupillometer device and with pupil assessments.

Aim 1: Determine baseline confidence level of NT ICU RNs with Pupil assessments & Utilizing a Pupillometer Device

Aim2: Provide an educational course to the RNs about use and operation of the pupillometer device & assess knowledge pre/post surveys.

Aim 3: Measure the effects of the educational intervention and implementation of the pupillometer on RN's Confidence with pupil assessments and utilizing a pupillometer over a 12 -week period.

*Measured in a 0-5 scale; a higher score indicated a
  greater level of knowledge.
** Statistical significance when p ≤ .05.
Reference available upon request
Any additional questions please email me at gosipow1@jhu.edu

Methods

Design: pretest, posttest quality improvement Project
Setting: Inpatient Neurotrauma critical care unit.

Sample: Inpatient Neuro Trauma nurses (N=16) average years as RN 3-42, 14 females and 2 males. Certifications varied.

Baseline assessments of confidence, and knowledge with utilizing a Pupillometer device and pupil assessments began prior to implementing the intervention.

Intervention: Education presentation and participation in hands on training of Pupillometer device. Post knowledge surveys were completed post intervention.

Implementation: Nurses started utilizing Pupillometer Device on 10 TBI patients that met inclusion and exclusion criteria. Post confidence surveys were completed post implementation. Epic chart review was done to note completion of documentation of pupil assessments.

Results

A Wilcoxon-signed rank test showed statistically significant increase in confidence and knowledge of utilizing a pupillometer device and with pupil assessments after intervention and implementation,

- P_Conf =0.006, P_Know=0.008.

- The median scores for both knowledge and confidence increased from pre-intervention (Md_Conf=32.13) (Md_Know=26.63) to post intervention and implementation ((Md_Conf=37.31) (Md_Know=38.75).

Results

Table 1: Objective Assessment of Confidence

	Pre-Conf	Post-Conf	P-Value	Z-score Value
Mean	32.13*	37.31*		
Median	33.0	38.0	0.006	-2.743
Std.Dev	4.38	3.381		

Table 1: Objective Assessment of Knowledge

	Pre-Know	Post-Know	P-Value	Z-Score Value
Mean	26.63*	38.75*		
Median	29.00	39.00	0.008	-2.643
Std.Dev	11.272	6.923		

Conclusion

- ☐ An educational intervention targeted for inpatient Neuro Trauma RNs delivered through a hybrid of virtual and hands on training significantly increased confidence and knowledge outcomes.
- ☐ It is important to note that this project is the first of its kind. This quality improvement project presented nurses perspective of how confident and knowledgeable they are not only with utilizing a medical device technology but with a Pupillometer specifically.
- ☐ The findings of this project will contribute to the discussion of how we can increase our bedside nurses' confidence and knowledge with the ever-evolving medical device technology.