Does increased access impact Compliance of Pupillometer Assessments?

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INTRODUCTION

In the Neurocritical Care Unit (NCU), bedside assessment of the pupils (size, shape, reactivity, and relative symmetry) is a crucial part of the neurological examination for patients with acquired brain injury. For many years, nurses were trained to assess the pupils with flashlights. Although the pupillometer is easy to use and more reliable, the compliance is low. One of the many factors that effects compliance is accessibility to the device.

OBJECTIVE

To compare compliance rate of the pupillary assessment among nurses in the NCU before and after providing one device per room.

HYPOTHESIS

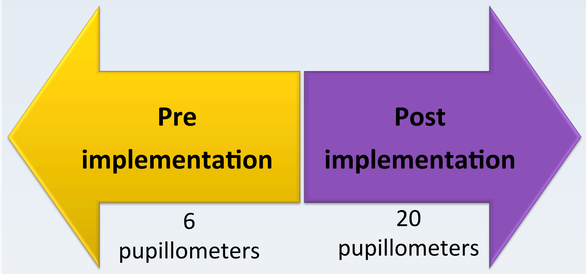
Ho: proportion of pupillary assessment before implementation = proportion of pupillary assessment after implementation.

Ha: proportion of pupillary assessment before implementation ≠ proportion of pupillary assessment after implementation.

MATERIALS & METHODS

This is a secondary analysis of a prospective END-PANIC registry data. The END PANIC registry is a prospective registry of pupilometer and patient physiologic data. The data abstraction timeline for this study is below:

- February 6, 2018- March 4, 2018
  - Pre-implementation (6 pupillometers)
- March 5, 2018 – April 5, 2018
  - Run In phase (20 pupilometers in room)
- April 6, 2018 – April 30, 2018
  - Post-implantation (20 pupilometers)



STATISTICAL ANALYSIS

The statistical analysis included the proportions (total readings/ICU Length of stay) of the pupillary assessment per each patient before and after placing a pupillometer in each room. After that the mean of proportions for each group was determined, a T-test for independents groups was used to determine the variance of the means.

RESULTS

A total of 162 patients totaling 2336 pupillary assessments were analyzed. In pre-implementation period 80 patients with 1160 readings and in post-implementation 82 patients with 1176 readings.

PRE/ POST	N	∑ ICU LOS	Total readings	Expected readings	Compliance
Pre	80	458	1160	2748	42%
Post	82	301	1176	2286	51%

Expected readings= ∑ ICU LOS * 6 (expected readings per day)

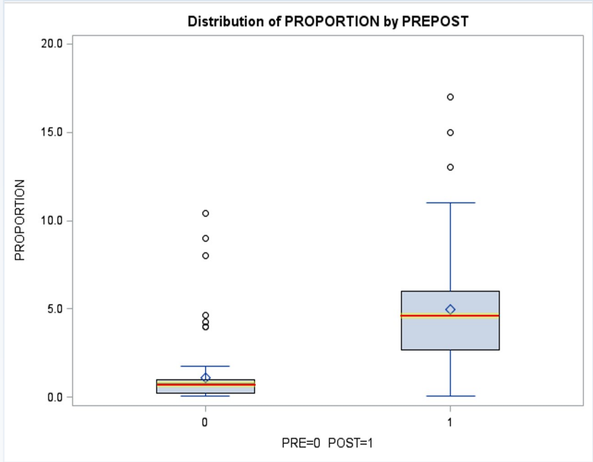
The univariate analysis, of the proportions of the pupillary assessment shows in the Pre-group a mean of 1.09 and median of 0.75. and in the Post-group a mean of 4.98 and a median of 4.63.

PRE/ POST	N	Mean ◇	STD	Median —	Min	Max
Pre	80	1.09	1.83	0.75	0.05	10.40
Post	82	4.98	3.28	4.63	0.06	17.00
Diff (1-2)		-3.89	2.66			

A T-Test shows a statistical significance variance between the means of proportion in pre-group and post-group **(F=3.18; *p*=<0.0001).** Suggesting that when the pupilometer was in every room there was pupilometer readings complete.

CONCLUSIONS

After providing one device per room, the proportions in the post implementation group was higher, indicating an increase in the number of the pupillary assessment using the pupilometer during the NCU stay.



"An increase in the number of devices allowed an increase in the compliance of the pupillary assessment among nurses in the Neurocritical Care Unit"

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