

**Abstract 767- Presented at the 2021 Society of Critical Care Medicine (SCCM) 50<sup>th</sup> Critical Care Congress**

## **Five-Year Experience With an Automated Pupillometer System: Implementation and Nursing Attitudes**

*Diem Kieu Tran*

*University of California Irvine Health, Orange, CA*

### **Introduction/Hypothesis**

Pupil checks are a routine part of the neurological exam in critically ill patients. Traditional pupil exams with penlights are particularly inaccurate/difficult with small and sluggish pupils. Automated pupillometry provides reliable and accurate measurements of pupillary light responses. We established interfaces that allow the direct download of Pupillometer information to our hospital EMR. Here we compare the impact that this new pupillometer system has on our nurse's patient care and their assessment of the device.

### **Methods**

An interface allowing direct pupillometer data download to our EMR was developed in conjunction with our informatics team. We then performed a prospective study with nursing staff. An electronic survey was distributed to the nurses in units that used pupillometers in 2015, 2018, and 2020 using a 5-point Likert scale to evaluate efficacy of the implementation.

### **Results**

In 2015, there were 6 pupillometers available in the hospital. Since then, the pupillometer number increased to 32 (12 in Neuro ICU, 6 in SICU, 8 in MICU/CVICU, 4 in step down, 1 in ER, and 1 in Burn ICU). In 2015, 22 nurses were surveyed with 50% of the respondents citing lack of pupillometers and 41% citing the labor intensity with data entry as the cause for reluctance to use pupillometers. However, 100% of nurses felt the new system improved ICU work flow. The number of nurse responses in 2018 increased to 123 with 78% of nurses finding that the direct download to hospital EMR makes neurological checks easier and saves time. 63% find pupillometry more useful than the penlight. In the 2020 follow up, 108 nurses responded with similar responses to those in 2018. In both surveys there were 15 total questions. 10 addressed nursing comfort and satisfaction. These scored an average of 4.4/5 in 2018 and 4.7/5 in 2020 on a 5-point Likert scale (5= most favorable). The 2020 survey had 3 questions about use of pupillometers during the COVID19 pandemic. 15% of the nurses felt pupillometers were helpful in these patients. 58% of nurses were reassured of the neurologic exam when using the pupillometer in lieu of a full exam to limit infectious exposure.

### **Conclusions**

Directly downloading pupillometer data to the EMR improves nursing workflow and improves documentation of pupillary findings and changes.