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The Transition to Automated EMR Download of Pupillary Data in the ICU: A 3-year Experience

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Description

Pupillary measurements are a routine part of the neurological examination. This is particularly true of patients with neurologic disorders such as TBI/CVA. Proper measurement and documentation is critical for providing information to critical care staff. Introduction of the automated pupilometer has helped in the reliable, consistent, and accurate measurement of pupillary light response. However, recording the many pupil presents a challenge for the bedside ICU nurse each hour. We describe our experience at a Level I trauma center and Comprehensive Stroke Center where the NeuroOptics NPi 200 Pupilometer has been integrated into the Neurologic, Surgical, Burn, Medical, and Cardiac ICUs. Key to integration is adaptation of the ability to directly download the data each hour to our EMR system. A survey of the ICU nurses was performed to assess their level of acceptance of the pupilometer and the direct download to EMR.

Learning Objective

The process of the implementation started first with the Neurologic ICU then the surgical ICUs and subsequently to the other units. The Time period was from September 2015 until August 2018. Key to the implementation is the direct download from the pupilometer. This employs an HID reader for the pupilometer computer chip using the iSirona DeviceConX program. The data is packaged HL7 format and sent directly to the EMR. Our hospital underwent a change in EMR system during this time period, thus we demonstrated that this worked for both Quest and EPIC EMR systems equally well. Modifications in the design and placement of the chip readers was key for the adoption of the new technology. As a test of the efficacy of the implementation, a electronic survey was distributed to the ICU nurses using Likert style format.

Results

The NeuroOptics NPi 200 pupilometer system with the direct download to EMR was implemented over 5 different ICUs effectively. This includes 72 ICU beds and 300 ICU nurses. Key implementations included increasing the number of pupilometer units per ICU unit and placing chip readers in each ICU room. Key findings from the Survey of the ICU nurses. -response rate was 30%, 48% response rate of the Neuro ICU, 38% for SurgICU - 75% use it when they perceive a neurologic issue -On a Likert scale with 5 being favorable: comfort with device=4.67, EMR download efficacy=4.82, Pupilometer more useful than penlight=4.54, confort with NPI concept=4.49, benfit to patient care=4.65

Conclusion

EMR Download is key to nursing satisfaction with the pupilometer.