# Reflections on Patient Care Technicians Obtaining Pupillometer Readings in a Neuroscience Intensive Care Unit

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The ability to trend physiologic measures is one of many ways that nurses contribute to successful patient outcomes. For patients with acquired brain injury, even subtle changes in patient conditions may herald significant neurological decline. As such, neuroscience nurses spend a large portion of their time in monitoring and assessing patients for subtle changes. Quantitative pupillometry (QP) is relatively new to many neurological and neurosurgical care units.[1] The adoption of QP in our neuroscience intensive care unit (NSICU) is enhanced by partnering with our patient care technician (PCT) team to obtain QP readings. This reflections article describes our experiences in promoting the PCT role to obtain QP readings.

## Background

The pupillary light reflex (PLR) was traditionally *assessed* by a nurse or physician using a flashlight or penlight to estimate the shape, size, and reactivity of each pupil.[2] With QP, nurses *assess* PLR by interpreting data from the QP readings. Subjective assessment of the PLR by human observers is unreliable[3] and inadequately precise.[4] Alternatively, QP is highly reliable and provides significantly more precise measurements of several components of the PLR that are unavailable when using human observation (eg, constriction velocity measured in millimeters per second).[5,6]

The pupillometer is a device that uses high-speed video to measure pupil size before, during, and after being exposed to light. The pupillometer provides quantitative values (readings) of various PLR metrics.[6] The provision of high-quality, compassionate, nursing care is taxed with the many responsibilities and limited resources the profession currently faces.[7] The necessity of frequent data collection across multiple sources compiled for timely assessment are resource-intensive activities. Recognizing healthcare is a multidisciplinary effort, we enlisted our PCT team members to help obtain QP readings. It is important to make a clear distinction that our PCTs do not *assess* pupils. Rather, our PCTs obtain QP readings. Data from the QP readings are given to the registered nurse (RN) providing care who then interprets the readings to assess patient status. This is functionally similar to when a PCT obtains a blood glucose reading, and the nurse interprets meaning from that reading. The purpose of this reflections article is to provide insight for other neuroscience nursing units that are considering delegating QP readings to PCTs.

## Methods

This was a practice change. It was neither a quality improvement project nor a research project. As such, our institutional review board adjudicated this content as being exempt from institutional review board review. The primary efforts driving this practice change were made at the determination of the nurse manager and assistant nurse managers in the NSICU.

Delegation to an unlicensed assistive personnel (UAP) is allowed by most state boards of nursing (BONs) in most US states. Our institution has given the title of PCT to the UAP staff who are part of our multidisciplinary team. After reviewing the Texas Nursing Practice Act and Texas BON website, we determined that delegation of QP readings was appropriate for our RN staff. We then contacted the Texas BON and discussed our plans, and our interpretation of delegation, to provide additional

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information for our staff RNs and our management team. This was an important step in helping us to provide the RN staff guidance on appropriate delegation of pupil measurement—but not assessment—to UAPs (PCTs).

Our NSICU uses the neurological pupil index (NPi)-300, and training for PCTs was similar to training for RNs. Groups of 4 to 7 PCTs attended QP education sessions taught by the assistant nurse manager in collaboration with industry educators from NeurOptics (the company that produces the NPi-300). Sessions included information about how to use the device, about each of the primary measures,[6] and about which readings require that the PCT should immediately notify the RN. At our institution, PCTs are required to notify the RN of any NPi value less than 3.0. At the end of the education session, each PCT was then given time to ask questions and receive answers while participating in a hands-on training session during which they obtained QP readings on each other. They learned that if the device could not collect the required information, it did not provide a reading. This provided further reassurance for the RN and the PCT about the reliability of PLR readings. The entire education session lasted roughly 30 minutes. After all of our PCTs were trained on obtaining QP readings, we informed the staff RNs in the NSICU that they may decide whether and when to delegate QP readings to PCTs using their best clinical judgment.

## Practice Observations

We have now trained 100% of our PCTs, and we have formally incorporated this into our practice model. Patient care technicians have collected hundreds of readings with no adverse events. Because this is not a quality improvement or research project, we have only anecdotal evidence. However, the collated comments from both PCTs and RNs are universally positive. Our PCTs have gained another tool validating their role. Our RNs gained assistance with a task and time returned.

## Discussion

Before education and rollout of this initiative, there was some confusion caused by referring to QP *readings* as part of the neurological *assessment*. Assessment is more than simply the acquisition of data. We are not tasking PCTs to assess the patient's neurological status; we are tasking them to obtain a reading. Delegation is within the scope of nursing practice. Obtaining physiologic readings is within the scope of the PCT role (in our NSICU). This is analogous to when a PCT obtains a temperature reading and the RN assesses and interprets the meaning and implications

> ## Pupillometry measurements may be delegated to unlicensed assistive personnel with appropriate education.

of the temperature. The decision of whether and when to delegate a task to the PCT (any task, not only QP) remains in the domain of the RN. The ability of our PCT team members to obtain QP readings helps to promote their ability to contribute at their highest level.

## Conclusion

Patient care technicians are partners in providing care to patients in many different healthcare settings. Nursing and management teams may benefit from educating PCTs to obtain QP readings while ensuring that the PLR assessment remains the role of the RN. Although we did not measure the impact on nursing workload, it is reasonable to expect that optimally coordinated care helps to promote a healthy workplace environment. Patient care technicians are vital members of the multidisciplinary care team and should be encouraged and allowed to make their maximum contribution.

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