

# Pupillary Assessment Times



### METHODOLOGY

Over a 48-hour period in the NeuroScience Intensive Care Unit (NSICU) at University of California Irvine (UCI) Medical Center, a study was completed which compared the length of time 30 staff nurses each spent completing a patient pupil examination by manual assessment using a penlight in comparison with using the NeurOptics® NPi®-200 Pupillometer.

TRADITIONAL PUPIL ASSESSMENT	TIME SPENT
Obtaining Flashlight/Penlight/Ophthalmoscope	10 seconds
Light (Direct and Consensual Assessments) Performed on both eyes twice* (Average)	20 seconds
EMR Log on Time	35 seconds
Manual Documentation of Pupillary Assessment on EMR	15 seconds
<b>Total (Non-Complex Patient)</b>	<b>80 seconds</b>
Secondary Assessment Performed by Another Healthcare Professional (25% of Neuro Critical Care Population)	75 seconds
<b>Total (Complex Patient with Second Examiner)</b>	<b>155 seconds</b>
Average Time Spent Obtaining Third Opinion from Advanced Practitioner (5% of Neuro Critical Care population)	240 seconds (4 minutes)
<b>Total (Complex Patient with Third Examiner)</b>	<b>395 seconds</b>
<b>Total (24 hours)**</b>	<b>2,748 seconds (45.8 minutes)</b>
<b>Total (7 Day ICU Stay)</b>	<b>321 minutes</b>

PUPILLOMETER ASSESSMENT	TIME SPENT
Obtaining Pupillometer	5 seconds
Pupillometer Assessment (Including Attachment of SmartGuard®)	18 seconds
Docking SmartGuard	5 seconds
EMR Log on Time	35 seconds
Documentation of Pupillary Assessment on EMR (Using Auto Upload)	2 seconds
<b>Total Pupillometer Assessment</b>	<b>65 seconds</b>
<b>Total (24 hours)**</b>	<b>1,560 seconds (26 minutes)</b>
<b>Total (7 Day ICU Stay)</b>	<b>182 minutes</b>

Pupillary assessment using the NPi-200 Pupillometer provides accurate, reliable and objective pupil size and reactivity measurement increasing interrater reliability. The above study was conducted in the 12-bed NSICU at UCI Medical Center, a Level 1 trauma center. We have concluded that quantitative pupillometry provides ICU staff a substantial time savings when combined with automatic data upload into the Electronic Medical Record (EMR).

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\*Pupil assessment based on current standard of care outlined in Mosby Nursing Skills 2014  
 \*\*Care of patient over the course of 24 hours with hourly pupillary neurological assessments