

Nursing Time Saved: Automated vs. Manual Pupil Assessment

Manual Pupil Assessment Technique

Manual pupil assessments (penlight) are subjective and fraught with a high degree of inter examiner variability. It is well documented that automated pupillary assessment solves these problems, but manual pupil assessment can also take more time than automated pupillometry and little has been discussed about this.

A paired assessment with the pupillometer takes a clinician about 15 seconds. Manual pupil assessment can be confounded by several issues: Visual acuity of the examiner, dark eyes or small pupils of the patient, ambient light conditions and the subjectivity and skill/experience level of the examiner. As a result, in some patients, a clinician will often pass the penlight multiple times to try and confirm what he/she sees and a manual assessment can take more time. In other cases, if the clinician is not sure or if there is a suspected pupil change, another opinion might be sought. This involves an additional person and several minutes more of time. As a single measurement, these differences might not seem meaningful but given the frequency of pupil exams, these differences are significant over time.

Charting and Inputting Data

Some clinicians will complete the exam and immediately record the pupil measurement data into the terminal, while others will complete the pupil exam, continue with necessary patient care, and then later go to the terminal, log in, input the data and log out. Nurses at a high volume neuro ICU were recently timed and, on average, these charting and data entry steps took about one minute. Automatic data upload will eliminate the need to manually chart and input data.

Annual Cost Savings Example

Total seconds saved per assessment	90 seconds
Annual patient volume	500
Average length of stay	5 days
Average pupil assessment interval	2 hours
Total nursing hours saved using NPi®-200 and automatic charting and upload	750 hours per year
<p><i>ICU Assumptions</i></p> <ul style="list-style-type: none"> - 500 neuro patients per year - 5 day average length of stay - 2 hour pupil checks during patients stay (60 total assessments) 	<p><i>Time Saving Assumptions with Automated Assessment</i></p> <ul style="list-style-type: none"> - 30 seconds of time saved per assessment between manual and automated - 60 seconds of time saved per assessment given no need to chart and input - 90 total seconds saved per assessment

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2014 MKT_WP-NSG