Reviewer’s report

Title: Screening for hypoglycemia at the bedside in the neonatal intensive care unit (NICU) with the Abbott PCx glucose meter

Version: 1 Date: 13 May 2006

Reviewer: John Mastrototaro

Reviewer’s report:

General

This paper investigates the accuracy of bedside meter testing versus lab results in a NICU setting. The authors do a good job explaining the question of the paper and why an understanding of the data is important. Despite referencing and testing to defined ADA standards, it might be important to state whether the authors believe the ADA standards are applicable in the NICU setting (in the discussion section).

Because much of the paper evaluates the effect of various parameters on the data, I would suggest a statistician review the methods and results, since several conclusions about the affect of these parameters on the differences in readings are drawn.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

The referenced ADA guideline for accuracy of Self-monitoring of Blood Glucose meters recommends that meters be within 10% of glucose values. Since your interest is in the low glucose range however, I suggest an additional analysis of the data using the ISO standard ISO15197, which states that 95% of the meter readings should be within 15 mg/dl of the reference at glucose concentrations below 75 mg/dl, and they should be within 20% at glucose concentrations greater than or equal to 75 mg/dl. The results will change, as will your ROC curve and suggested threshold level for re-testing. If you believe the ISO guideline is too broad at the low end, consider using a different mg/dl threshold for error, but explain your rationale for a tighter accuracy criteria. The ADA guideline was written in 1994 when analyzing data across the glucose range. At low glucose levels, meters would have to be within a few mg/dl of the lab to meet the 10% accuracy criteria, and I'm not sure this was the intent or if its necessary or applicable. For example, 10% error at 40 mg/dl is only 4 mg/dl. Is this level of accuracy required? In summary, I think you should discuss the clinical significance of the levels of inaccuracy you observed in your study.

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Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

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Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes

Declaration of competing interests:
I declare that I have no competing interests.