A neonatal glucose reading is used to evaluate glycemic status and determine treatment/intervention in a hypoglycemic neonate. The goal is to keep glucose concentrations in symptomatic neonates above 45 mg/dL. August 2011 new protocols were implemented narrowing the glucose ranges for differential treatment.

Whole blood glucose confirmation with the radiometer did not always match the Nova meter causing frustration for staff in treating neonates. Actions taken to try to determine and eliminate the cause for the discrepant result:
- Neonates heels were warmed to induce good perfusion
- Different lancets were used: A tenderfoot lancet versus a 28 gauge lancet

Randomized comparative study of glucose levels in the neonate population. Specimen Types:
- Whole blood analysis-Radiometer ABL 800
- Plasma and serum analysis- Siemens Vista
- Plasma equivalent analysis-Nova StatStrip Meter

Glucose was performed on the nursery Nova 1 via heel stick
Nursery collected a green bullet for the lab
Glucose was performed on the nursery Nova 2 via heel stick
Green bullet was sent to the lab
Lab performed glucose on the Nova in the lab

67 samples were collected, 27 samples were performed on all laboratory methods

Whole blood glucose on the Radiometer produces a higher glucose result than the Vista or Nova due to the hematocrit of neonates. Nova meter to Nova meter compares well. The Vista analyzer produces a more comparable result to the Nova meter than the Radiometer. Instead of measuring the neonate glucose on the Radiometer in the lab, glucose levels of neonates will be measured on the Vista.

To evaluate and determine if the cause of the discrepant glucose results was related to the whole blood method of the radiometer.

Figure 1. Lab Nova vs. Radiometer
Slope: 1.082, Int: 7.7, R: 0.9465, Bias: 12.0 (high bias)

Figure 2. Lab Nova vs. Vista
Slope: 0.909 Int: 0.7, R: 0.9403, Bias: -4.2 (OK bias)
Statistically compare well illustrating good comparison

Figure 3. Vista vs. Radiometer
Slope: 1.189 Int: 5.8, R: 0.9799, Bias: 15.2 (high bias)