Analysis: New Point-of-Care Blood Glucose Monitoring System for the Hospital Demonstrates Satisfactory Analytical Accuracy Using Blood from Critically Ill Patients—An Important Step toward Improved Blood Glucose Control in the Hospital

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Abstract

Patients managed in the intensive care units (ICUs) and general wards of the hospital experience a high incidence of hyperglycemia, hypoglycemia, and glycemic variability, despite significant hospital resources devoted to glucose control. Optimized glucose meters and monitoring systems are required to improve the safety and efficacy of insulin delivery and glucose control in the hospital. Safe insulin dosing requires timely and accurate glucose measurements, especially during dynamic changes in nutrition, insulin sensitivity, and physiological stress. In the current issue of *Journal of Diabetes Science and Technology*, Mitsios and coauthors describe the analytical accuracy of the new Accu-Check® Inform II blood glucose (BG) monitoring system commercialized by F. Hoffmann-La Roche Ltd. The point-of-care glucose meter achieved the desired degree of accuracy and precision, as defined by Clinical and Laboratory Standards Institute POCT12-A3 guidelines when evaluated using venous blood from 600 critically ill patients from multiple ICUs at two medical centers. Venous whole blood samples were used to obtain glucose meter results in duplicate. The remaining blood sample was centrifuged to obtain plasma for central hospital laboratory testing using the hexokinase method within 5 min of meter testing. A total of 98.8% of the 1200 Accu-Check Inform II meter’s glucose values were within ±12.5% (±12 mg/dl) of the mean laboratory glucose value, and 99.8% were within ±20% (±20 mg/dl), thus meeting the Clinical and Laboratory Standards Institute criteria. Future studies are required to evaluate the clinical performance of the new BG monitoring system in the intended-use patient populations and critical care environments, using arterial, peripheral venous, central venous, and capillary blood samples.


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**Abbreviations:** (BG) blood glucose, (ICU) intensive care unit, (POC) point of care

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