

State of the Art Review Blood Glucose Measurement And Monitoring Technologies - Abbreviated Report

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ABSTRACT

Introduction:

To describe alternative approaches, technologies, and products for glucose measurement under development and available in the consumer and clinical markets, and compare them with the market-ready Clinical Sentinel IP created, developed and refined by TecMed, Inc.

Method:

Compile and compare published data and descriptions for glucose measurement and management from the approaches, technologies, and products first described above. Data will include published accuracy data, specifications, costs, reliability, convenience, and efficacy.

Results:

Currently utilized systems with regulatory approval for use in critical care have common challenges that include lack of accuracy, high cost, complexity, timeliness and reliability. Systems under development have not sufficiently addressed most of these challenges. Continuous glucose monitoring systems (CGMS) have not proven effective for blood glucose management in critical care and perioperative environments with accuracy problems continuing. Improvements in sensor reliability and predictive algorithms have provided some improvement in accuracy, but daily fingerstick calibration and reimbursement issues continue to hinder broader adoption. Proposed and approved integrated continuous monitor-insulin pump "artificial pancreas" designs are showing promise and bolstering market growth in CGMS, but have existing and newly introduced challenges to address. Growth in CGMS is adding pressure to the already beleaguered conventional blood glucose monitoring market segment. The majority of non-invasive glucose monitoring technologies that are under development are recycled technologies with few new entrants outside of the hype of Google and Apple involvement.

Conclusions:

TecMed's Clinical Sentinel IP remains the only technology that has provided automation and accuracy at the levels recommended by healthcare professionals for appropriate glycemic management in critically ill patients that provides a viable solution for government mandated inpatient blood sugar targets and reimbursement penalties.