Peer Review Report

Review Report on Monitoring and optimization of POCT devices in a multi-specialty hospital in Poland: usage trends, quality assurance, and Clinical Impact (2017-2024)

Original Research, Acta Biochim. Pol.

Reviewer: Monika Wawszczak-Kasza
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EVALUATION

Q 1 **Please summarize the main findings of the study.**

This is an original study presenting a modern method for reporting the performance of critical parameter analyzers and glucometers in a multi-specialty hospital, based on data obtained from the supervision of POCT devices in the clinics, departments, and institutes of MIM-NRI from 2017 to 2024. The study introduces an advanced approach to reporting the functionality of these devices, enhancing data management and operational efficiency.
It was also demonstrated that there was a significant increase in glucometer usage during the COVID-19 pandemic (2017-2024), highlighting the growing reliance on point-of-care testing (POCT) in critical situations. In the first half of 2024, 40,082 blood sample tests were conducted, with a high rate of correctly performed gasometric tests (84.17%-86.38%), demonstrating consistency between clinical and laboratory testing. Furthermore, the study underscores the necessity of a robust POCT data management system and efficient IT communication for optimizing hospital operations and improving patient care. These findings highlight the critical role of POCT devices in modern healthcare, particularly in emergency and intensive care settings.

Q 2 **Please highlight the limitations and strengths.**

The study's findings are constrained by the limited number of control measurements, which, although a consequence of the overall measurement procedure constraints, may affect the comprehensiveness and generalizability of the results. This limitation highlights the need for further studies with an expanded dataset to enhance the reliability and statistical power of the analysis. The study introduces a modern and systematic approach to reporting the performance of critical parameter analyzers and glucometers, improving data management and operational efficiency in a multi-specialty hospital. A substantial number of blood sample tests (40,082 in the first half of 2024) were performed, with data systematically categorized by hospital departments, providing detailed insights into POCT usage across different clinical settings. The study underscores the importance of rigorous quality assurance, including international and national quality testing, daily internal calibration, and integration with the AQURE system for real-time monitoring and error detection.

Q 3 **Please comment on the methods, results and data interpretation. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.**

Statistical methods and data collection in accordance with generally accepted principles.
The data is presented correctly and clearly, requiring only editorial revisions. The results and conclusions are well-developed and compared with the most recent available literature.

Check List

Q 4 **Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List)**

No answer given.

Q 5 Is the English language of sufficient quality?

No.

Q 6 Is the quality of the figures and tables satisfactory?

Yes.

Q 7 Does the reference list cover the relevant literature adequately and in an unbiased manner?

Yes.

Q 8 Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)

Yes.

Q 9 Are the methods sufficiently documented to allow replication studies?

Yes.

Q 10 Are the data underlying the study available in either the article, supplement, or deposited in a repository? (Sequence/expression data, protein/molecule characterizations, annotations, and taxonomy data are required to be deposited in public repositories prior to publication)

Not Applicable.

Q 11 Does the study adhere to ethical standards including ethics committee approval and consent procedure?

Not Applicable.

Q 12 Have standard biosecurity and institutional safety procedures been adhered to?

Not Applicable.

QUALITY ASSESSMENT

Q 13 Originality

Q 14	Rigor	
Q 15	Significance to the field	
Q 16	Interest to general audience	
Q 17	Quality of the writing	
Q 18	Overall quality of the study