

ABSTRAK

EVALUASI PRESISI, AKURASI, DAN *SIGMA METRICS* PADA *QUALITY CONTROL INTERNAL* PEMERIKSAAN GLUKOSA DARAH DI UPT LABKESDA KABUPATEN KETAPANG

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Pemeriksaan kadar glukosa darah merupakan parameter diagnostik krusial dalam manajemen metabolik, Pemantapan Mutu Internal (PMI) yang terukur. *Sigma Metrics* merupakan indikator kinerja yang mengintegrasikan parameter presisi (*Coefficient of Variation/CV*) dan akurasi (bias) terhadap standar *Total Error Allowable* (TEa) untuk mengevaluasi kualitas analitik secara objektif. Penelitian bertujuan untuk melakukan evaluasi kinerja analitik pemeriksaan glukosa darah di UPT Labkesda Ketapang melalui penilaian presisi, akurasi, dan *Sigma Metrics* pada kegiatan *Quality Control Internal* di UPT Labkesda Kabupaten Ketapang periode Januari-Desember 2025. Metode penelitiannya desain analitik observasional retrospektif terhadap data sekunder hasil *Internal Quality Control* pemeriksaan glukosa darah. Sampel berjumlah 118 data menggunakan alat *Dirui Auto Chemistry Analyzer CS-T 180* metode Heksokinase. Evaluasi statistik mencakup perhitungan *Mean*, Standar Deviasi (SD), CV%, bias (d%), dan nilai Sigma berdasarkan standar CLIA (TEa glukosa 10%) serta interpretasi grafik *Levey-Jennings* dengan *Westgard Multirule System*. Berdasarkan hasil penelitian yang dilakukan didapatkan nilai rata-rata Mean 110,54 mg/dL, SD 2,62 mg/dL, CV 2,37% (presisi sangat baik), Bias 0,31% (Akurasi sangat baik) dan nilai Sigma Metrics 4,10 bernilai baik. Hasil penelitian dapat disimpulkan pemeriksaan glukosa darah di UPT Labkesda Kabupaten Ketapang tahun 2025 memiliki tingkat presisi, akurasi dan sigma metrics yang baik serta menunjukkan kinerja analitik memenuhi standar mutu yang optimal.

Kata kunci : Akurasi, Glukosa Darah, Presisi, *Quality Control Internal*, *Sigma Metrics*

ABSTRACT

EVALUATION OF PRECISION, ACCURACY, AND SIGMA METRICS IN INTERNAL QUALITY CONTROL OF BLOOD GLUCOSE TESTING AT THE UPT LABKESDA KETAPANG DISTRICT

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Blood glucose testing is a crucial diagnostic parameter in metabolic management and requires measurable Internal Quality Control (IQC). Sigma Metrics serves as a performance indicator that integrates precision (Coefficient of Variation/CV) and accuracy (bias) parameters against Total Error Allowable (TEa) standards to objectively evaluate analytical quality. This study aimed to evaluate the analytical performance of blood glucose testing at the Ketapang Regional Health Laboratory (UPT Labkesda) by assessing precision, accuracy, and Sigma Metrics during IQC activities from January to December 2025. A retrospective observational analytic design was employed using secondary data from blood glucose IQC results. The sample consisted of 118 data points obtained using the Dirui Auto Chemistry Analyzer CS-T 180 (hexokinase method). Statistical evaluation included calculating the Mean, Standard Deviation (SD), CV%, bias (d%), and Sigma value based on CLIA standards (glucose TEa of 10%), alongside the interpretation of Levey-Jennings charts using the Westgard Multirule System. The results showed a mean of 110.54 mg/dL, SD of 2.62 mg/dL, CV of 2.37% (excellent precision), bias of 0.31% (excellent accuracy), and a Sigma Metric value of 4.10 (good performance). In conclusion, blood glucose testing at the Ketapang Regional Health Laboratory in 2025 demonstrated good levels of precision, accuracy, and Sigma Metrics, indicating analytical performance that meets optimal quality standards.

Keywords: Accuracy, Blood Glucose, Internal Quality Control, Precision, Sigma Metrics