

ABSTRAK

Ultrasonografi (USG) merupakan alat diagnostik penting di bidang medis karena kemampuan non-invasifnya dalam menghasilkan gambar real-time. Namun, masalah seperti kualitas gambar buram, overheating, dan downtime alat sering mengganggu efektivitasnya. Penelitian ini bertujuan menganalisis perbaikan dan peningkatan kinerja alat USG menggunakan metode Six Sigma dengan pendekatan DMAIC (Define, Measure, Analyze, Improve, Control). Data diperoleh melalui observasi, wawancara, dan pengukuran kinerja sebelum dan sesudah perbaikan. Hasil penelitian menunjukkan bahwa penerapan metode Six Sigma berhasil meningkatkan kinerja alat USG. Downtime rata-rata berkurang dari 1,5 jam per kejadian menjadi 0,4 jam, dengan total downtime turun dari 15% menjadi 4% dari waktu operasional. Kualitas gambar meningkat secara signifikan dari kategori "cukup" menjadi "sangat baik". Perbaikan yang dilakukan meliputi pemasangan pendingin tambahan, pembaruan perangkat lunak, pemeliharaan transduser, dan pelatihan operator. Tahap kontrol memastikan keberlanjutan perbaikan melalui pemeliharaan rutin dan evaluasi berkala. Kesimpulannya, metode Six Sigma efektif untuk mengidentifikasi dan mengatasi akar masalah, meningkatkan kualitas pencitraan, dan mengurangi downtime. Penelitian ini merekomendasikan penerapan pemeliharaan rutin dan pelatihan operator secara berkala untuk menjaga kinerja alat USG tetap optimal.

Kata Kunci: Ultrasonografi, Six Sigma, DMAIC, Kinerja Alat Medis, Peningkatan Kualitas

ABSTRACT

Ultrasonography (USG) is a crucial diagnostic tool in the medical field due to its non-invasive capability to produce real-time imaging. However, issues such as blurry image quality, overheating, and equipment downtime often hinder its effectiveness. This study aims to analyze the improvement and enhancement of USG device performance using the Six Sigma method with the DMAIC (Define, Measure, Analyze, Improve, Control) approach. Data were collected through observations, interviews, and performance measurements before and after the improvements. The results indicate that implementing the Six Sigma method successfully enhanced the performance of USG devices. The average downtime per incident decreased from 1.5 hours to 0.4 hours, with total downtime reducing from 15% to 4% of operational time. Image quality significantly improved from the "fair" category to "excellent." The improvements included installing additional cooling systems, updating software, maintaining transducers, and training operators. The control phase ensured the sustainability of these improvements through routine maintenance and periodic evaluations. In conclusion, the Six Sigma method effectively identifies and resolves root causes, enhances imaging quality, and reduces downtime. This study recommends implementing routine maintenance and regular operator training to maintain optimal USG device performance.

Keywords: *Ultrasonography, Six Sigma, DMAIC, Medical Equipment Performance, Quality Improvement*