ABSTRAK

Penelitian ini bertujuan untuk menganalisis perbandingan tingkat keandalan dan umur pakai alat Elektrokardiografi (EKG) merk A dan merk B di Rumah Sakit Negeri C. Keandalan alat dinilai berdasarkan parameter Mean Time Between Failures (MTBF) dan Mean Time to Repair (MTTR). Selain itu, estimasi umur pakai dihitung dari total waktu operasional alat dan frekuensi pemeliharaan selama satu tahun. Data diperoleh melalui observasi, dokumentasi pemeliharaan, serta wawancara dengan teknisi dan staf medis. Hasil penelitian menunjukkan bahwa alat EKG merk B memiliki keandalan yang lebih tinggi dibandingkan merk A. Rata-rata MTBF merk B lebih tinggi, sedangkan merk A hanya lebih rendah. Dari segi waktu perbaikan, merk B lebih efisien, dibandingkan merk A yang membutuhkan waktu rata-rata 9,19 jam. Analisis umur pakai menunjukkan merk A memiliki masa umur lebih lama dari merk B. Perbedaan ini mengindikasikan kualitas material dan teknologi yang lebih baik pada merk B. Penelitian ini merekomendasikan agar rumah sakit mempertimbangkan penggunaan alat merk B untuk meningkatkan efisiensi operasional jangka panjang, meskipun biaya awalnya lebih tinggi. Hasil ini diharapkan dapat menjadi referensi bagi pengelolaan peralatan medis dalam mendukung pelayanan kesehatan yang optimal.

Kata Kunci: Keandalan, Elektrokardiografi, MTBF, MTTR, Umur Pakai

ABSTRACT

This study aims to analyze the reliability and lifespan comparison of Electrocardiography (ECG) devices of brand A and brand B at State Hospital C. Device reliability was assessed using the parameters Mean Time Between Failures (MTBF) and Mean Time to Repair (MTTR). Additionally, the lifespan estimation was calculated based on the total operational time and maintenance frequency over one year. Data were collected through observation, maintenance documentation, and interviews with technicians and medical staff. The results showed that brand B ECG devices had higher reliability than brand A. The average MTBF of brand B was higher, while brand A had a lower MTBF. In terms of repair time, brand B was more efficient compared to brand A, which required an average of 9.19 hours. Lifespan analysis showed that brand A had a longer lifespan than brand B. These differences reflect better material quality and technology in brand B. This study recommends that hospitals consider using brand B devices to improve long-term operational efficiency, despite the higher initial costs. These findings are expected to serve as a reference for managing medical equipment to support optimal healthcare services.

***Keywords**: Reliability, Electrocardiography, MTBF, MTTR, Lifespan*