

ABSTRAK

Kualitas daya listrik yang stabil sangat penting dalam operasional peralatan kesehatan di fasilitas pelayanan kesehatan tingkat pertama. Penelitian ini bertujuan untuk menganalisis dampak over voltage PLN terhadap kinerja dan keselamatan peralatan kesehatan di UPTD Puskesmas Lempaseh. Metode penelitian menggunakan pendekatan kualitatif deskriptif melalui wawancara mendalam, observasi lapangan, dan studi dokumentasi. Hasil penelitian menunjukkan bahwa over voltage menyebabkan peningkatan gangguan pada peralatan medis sensitif seperti monitor pasien, nebulizer, suction pump, dan infus pump. Dampak yang ditemukan meliputi kerusakan komponen elektronik, error tampilan, penurunan akurasi pengukuran, downtime alat yang berkepanjangan, serta peningkatan biaya pemeliharaan. Dari aspek keselamatan, over voltage menimbulkan risiko berupa percikan api kecil, bau hangus, kejutan listrik ringan, dan potensi kegagalan alat saat digunakan pada pasien. Sistem mitigasi yang telah diterapkan, seperti penggunaan stabilizer dan UPS, belum merata di seluruh unit pelayanan karena keterbatasan anggaran, kurangnya perangkat pelindung, serta minimnya pelatihan staf mengenai risiko kelistrikan. Penelitian ini menyimpulkan bahwa peningkatan sistem proteksi daya, pemantauan kualitas listrik secara real-time, serta penguatan kapasitas teknis staf sangat diperlukan untuk mengurangi risiko over voltage dan menjaga keandalan serta keselamatan peralatan kesehatan di Puskesmas.

Kata Kunci: Over Voltage, Kualitas Daya Listrik, Peralatan Kesehatan, Keselamatan Elektromedis, Puskesmas

ABSTRACT

Stable electrical power quality is crucial for the operation of medical equipment in primary healthcare facilities. This study aims to analyze the impact of PLN overvoltage on the performance and safety of medical equipment at UPTD Puskesmas Lempaseh. A descriptive qualitative approach was used, employing in-depth interviews, field observations, and document analysis. The results show that overvoltage causes increased disturbances in sensitive medical devices such as patient monitors, nebulizers, suction pumps, and infusion pumps. The observed impacts include electronic component failures, display errors, reduced measurement accuracy, prolonged equipment downtime, and increased maintenance costs. In terms of safety, overvoltage poses risks such as small sparks, burning odors, minor electric shocks, and potential equipment malfunction while in use on patients. Existing mitigation systems, including voltage stabilizers and UPS units, are not yet evenly implemented due to budget limitations, insufficient protective devices, and limited staff training on electrical hazards. This study concludes that improving power protection systems, implementing real-time electrical quality monitoring, and enhancing staff technical competencies are essential to reduce overvoltage risks and ensure the reliability and safety of medical equipment in the health center.

Keywords: *Overvoltage, Power Quality, Medical Equipment, Electrical Safety, Community Health Center*