

PERANCANGAN APLIKASI REKAM MEDIS ELEKTRONIK BERBASIS *FAST HEALTHCARE INTEROPERABILITY RESOURCES (FHIR)*

(Studi Kasus: Klinik Praktek drg.Femmy Puteri Ademuklis)

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ABSTRAK

Penelitian ini dilatarbelakangi oleh masih digunakannya sistem pencatatan manual dalam pengelolaan rekam medis di Klinik Praktek drg. Femmy Puteri Ademuklis yang menyebabkan keterlambatan pelayanan, kesulitan pencarian data pasien, risiko kehilangan dokumen, serta belum terwujudnya integrasi data dengan sistem kesehatan lain. Meskipun transformasi digital di sektor kesehatan terus berkembang, penerapan standar interoperabilitas seperti *Fast Healthcare Interoperability Resources (FHIR)* pada praktik dokter gigi masih belum optimal, sehingga menimbulkan kesenjangan antara kebutuhan integrasi data dan implementasi di lapangan. Penelitian ini bertujuan merancang dan mengimplementasikan sistem Rekam Medis Elektronik (RME) berbasis FHIR untuk meningkatkan efisiensi pengelolaan data sekaligus mendukung pertukaran informasi kesehatan secara terstandar. Pengembangan sistem dilakukan menggunakan metode *Rapid Application Development (RAD)* melalui tahapan perencanaan kebutuhan, perancangan bersama pengguna, pembangunan sistem, serta implementasi dan pengujian. Sistem dibangun dengan memanfaatkan *resource* utama FHIR seperti *Patient* dan *Appointment* yang terintegrasi melalui RESTful API. Hasil pengujian fungsional menggunakan metode *black box* menunjukkan bahwa seluruh fitur berjalan sesuai kebutuhan, termasuk pengelolaan data pasien, pencatatan rekam medis, penjadwalan kunjungan, dan validasi data, sementara pengujian kesesuaian dokumen terhadap *StructureDefinition* resmi FHIR menunjukkan bahwa seluruh *resource* yang dihasilkan valid sesuai standar HL7. Implementasi sistem ini terbukti mampu meningkatkan ketertiban administrasi, mempercepat akses informasi medis, mengurangi kesalahan pencatatan, serta mendukung digitalisasi layanan kesehatan di lingkungan klinik secara lebih terstruktur.

Kata Kunci: Rekam Medis *Elektronik*, FHIR, Interoperabilitas, Sistem Informasi Klinik, *Rapid Application Development*.

DESIGN OF AN ELECTRONIC MEDICAL RECORD APPLICATION BASED ON *FAST HEALTHCARE INTEROPERABILITY RESOURCES (FHIR)*

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ABSTRACT

This research is motivated by the continued use of a manual recording system in managing medical records at the drg. Femmy Puteri Ademuklis Practice Clinic, which causes delays in services, difficulty in locating patient data, the risk of document loss, and the failure to integrate data with other healthcare systems. Although digital transformation in the healthcare sector continues to grow, the implementation of interoperability standards such as Fast Healthcare Interoperability Resources (FHIR) in dental practices is still suboptimal, creating a gap between data integration needs and implementation in the field. This research aims to design and implement a FHIR-based Electronic Medical Records (EMR) system to improve data management efficiency while supporting standardized health information exchange. The system was developed using the Rapid Application Development (RAD) method through the stages of requirements planning, user collaboration, system development, implementation, and testing. The system was built by utilizing key FHIR resources, namely Patient and Appointment, integrated through a RESTful API. The results of functional testing using the black box method showed that all features functioned as needed, including patient data management, medical record recording, visit scheduling, and data validation, while document conformance testing against the official FHIR StructureDefinition showed that every resource produced by the system is valid according to the HL7 standard. The implementation of this system has been proven to improve administrative order, accelerate access to medical information, reduce recording errors, and support the digitalization of healthcare services in a more structured clinical environment.

Keywords: *Electronic Medical Record, FHIR, Interoperability, Clinical Information System, Rapid Application Development.*