

Research on HL7 electronic medical record standards and application in building electronic medical records for Salavan Provincial Hospital – Laos

Olay Singkhaopet

Abstract: This study investigates the HL7 electronic health record (EHR) standard and its application in developing an EHR system for Salavan Provincial Hospital, Laos. The research addresses the critical need for standardized health information management in resource-limited settings. It analyzes the HL7 version 2.x messaging framework, focusing on its data structures, segment definitions, and interoperability protocols. A functional EHR prototype was designed and implemented based on HL7 standards, tailored to the hospital's clinical workflows and infrastructure constraints. The system facilitates structured patient data entry, storage, and exchange, supporting key modules such as admission, discharge, transfer, and laboratory results. Evaluation results demonstrate improved data consistency, reduced documentation errors, and enhanced information accessibility compared to the existing paper-based system. The study concludes that HL7-based EHR adoption is feasible for provincial hospitals in Laos, offering a scalable model for national health information system integration. Key challenges include technical capacity building and infrastructure development. This research contributes to digital health transformation in developing countries.

Keywords: HL7, electronic medical records, Salavan, Laos