Development of a Technology-Based Immunization Service Information System to Improve Efficiency and Accuracy of Health Services

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Abstract: *The development of information technology has had a significant impact on various sectors, including healthcare. Community Health Centers (Puskesmas), as primary healthcare providers, play an important role in immunization programs but still face challenges in data management and manual record-keeping, which often cause delays and administrative errors. This research aims to design immunization service information system to address these issues, featuring digital record-keeping, automatic reminders, and real-time monitoring. The Prototyping method is used in the development of this system, involving stages of needs analysis, quick design, model creation, prototype implementation, and user evaluation. The expected outcome is an information system that improves the efficiency of immunization services, minimizes administrative errors, and facilitates easier monitoring of immunization status, thus contributing to the enhancement of healthcare service quality at Puskesmas.*

Keywords: *Health Information System, Immunization Service, Prototyping, Community Health Centers*

Introduction

The development of information technology in recent decades has had a significant impact on various sectors, including healthcare. The advancement of technology allows for the management of data and information to be done more quickly, accurately, and efficiently. This is crucial in efforts to improve the quality of healthcare services, especially in primary healthcare facilities such as community health centers (Puskesmas). As the frontline of public healthcare services, Puskesmas plays an important role in providing services related to disease prevention, one of which is through infant immunization programs.

A study by Santoso & Prabowo (2020) shows that the implementation of electronic-based information systems in healthcare can reduce administrative errors and improve the speed of clinical decision-making. The use of Electronic Medical Records (EMR) is also becoming common in hospitals and clinics as part of the efforts to digitize healthcare services. The development of cloud computing technology and the Internet of Things (IoT) is also being integrated into modern healthcare systems to support data sharing and remote patient monitoring.

The community health center (Puskesmas) is a technical health implementing unit under the supervision of the District/City Health Office. In general, Puskesmas must provide promotive, preventive, curative, and rehabilitative services, both for Individual Health Efforts and Community Health Efforts. Puskesmas can also provide inpatient services in addition to outpatient services. Nurses, midwives, and doctors are healthcare workers who provide health services at Puskesmas. Typically, Puskesmas has service sub-units such as assisting Puskesmas, mobile Puskesmas, integrated health posts (Posyandu), village health posts, and village maternity posts (Polindes). Puskesmas is the center for public health services responsible for providing primary healthcare services to the community, especially in disease prevention and health problem control at the local level. The role of Puskesmas in Indonesia