

UNIVERSITI TEKNOLOGI MARA

**RECORDKEEPING METADATA
FOR THE INTEGRATION OF
ELECTRONIC HEALTH RECORDS
SYSTEM IN MALAYSIAN
TEACHING HOSPITALS**

SERI INTAN IDAYU BINTI SHAHRUL ASARI

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ABSTRACT

Numerous health information systems have been established due to the development of ICT. The Twelfth Malaysia Plan 2021-2025 continued to define strategies to enhance the delivery of health system services. The pandemic of COVID-19 has tested the resilience and responsiveness of healthcare delivery systems across the globe. To ensure that the community has equal access to healthcare services and is prepared for future health crises, it is essential to revitalise the healthcare system. However, the implemented system has integration and interoperability limitations for facilitating hospital-based clinical operations. Ministry of Health (MOH) and Non-MOH hospitals are the two categories of government hospitals. As the MOH hospital's strategic plan focuses on MOH, Non-MOH is deemed essential to investigate. Integration is only effective if a portion of the health organization's structure is appropriately issued. This is where the difficulties arose, and system integration remains the primary focus of the eHealth Strategy in Malaysia to this day. After extensive research, several key issues were identified that prompted the undertaking of this study. One of the challenges is that having different records systems creates difficulties when integrating and sharing data. 2) An established standard or framework for managing operations must be established. 3) Restricted integration and interoperability. 4) Inadequate administration of the electronic health records system 5) The issue of evidence arising from the presence of many copies in various storage locations, and 6) Distinct data definition. Recordkeeping metadata is the optimal solution for the incorporation of Electronic Health Records (EHR), where metadata are elements that incorporate the relationship between records to make them comprehensible and usable. In addition to facilitating data sharing, data integration, and linking, recordkeeping metadata also facilitates data exchange. Therefore, this study proposes to generate recordkeeping metadata requirements for the integration of the EHR system in Malaysian Teaching Hospitals. A multiple case study was identified as the optimal method. Beginning with a comprehensive analysis of local and international best practises, recordkeeping metadata for integration are formulated. Six (6) standards have been evaluated and contrasted. The analysis has identified fifty (50) elements of the records metadata category as the focus of the study. The analysis has also led to the discovery of a new category which is then named as "research value" metadata. A semi-structured interview and content analysis have been conducted to collect data. Existing metadata elements utilised by teaching hospitals have been the subject of an in-depth investigation. In addition, the interview discloses forthcoming additions to the hospital's metadata. To finalise the proposition for recordkeeping metadata for the integration, the study has analysed and compared the result of RO2 to determine the obligation status. The findings identify eighteen (18) Mandatory, sixty (60) Conditional, and sixty-one (61) Optional obligation statuses. The proposal of recordkeeping metadata for the integration of Malaysian teaching hospitals has been completed based on the findings of this study. The outcome of the study will serve as standard guidance for the integration of metadata elements into the EHR system in teaching hospitals. Experts in records will identify the point of uniformity that permits system integration through verification and feedback. The documented requirements for recordkeeping metadata could motivate all Malaysian hospitals to implement an integrated EHR system. It could increase the sharing of data with institutions other than the government.

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CHAPTER ONE

INTRODUCTION

This chapter introduces the outline of the research. It serves as the mapping mechanism in connecting the basis for the research conduct. It begins with the research context and its significance to the researchers as well as issues regarding the topic under study. The need for research on the management of electronic health records in Malaysia is also highlighted. This chapter also clarifies the focus of this study by defining and explaining its aim, objectives, and scope of the study. The final part of this chapter highlights on the study's significant contributions to the new knowledge.

1.1 Context of the Study

Metadata can be defined as information that describes or provides context for other data. Metadata refers to the information that is utilised to enable organised access and intellectual management of other material (Minnesota's Information Technology Agency, 2015). Metadata is used to provide a comprehensive description of an object, whether it is in digital or physical form, including its relationships with other entities, as well as its historical and future handling. Metadata allows users to efficiently identify and evaluate material without having to rediscover it for each use. The key elements of this system consist of a clearly defined structure and a standardised lexicon, which collaborate to facilitate a precise and readily comprehensible representation of the content, location, and importance (Minnesota Historical Society, 2012).

Metadata is used to manage structured or semi-structured information, allowing for the generation, management, and utilisation of records over time and across different domains (International Organisation for Standardisation, 2009). Metadata in the context of records management refers to data or information about the records, such as the circumstances in which the records were created, the systems and procedures involved in their generation and management, and the activities that the records are intended to support. Metadata serves as the cohesive element that connects different parts of a record and establishes the relationship between the record and other relevant documents, facilitating their comprehension and utilisation (International documents