INTEGRATED HEALTH INFORMATION SYSTEMS FRAMEWORK IN POST NATAL CARE FOR MODERN AND TRADITIONAL MALAY MEDICINE

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RAJA RINA BINTI RAJA IKRAM

A thesis submitted in fulfillment of the requirements for the degree of Doctor of Philosophy

Faculty of Information and Communication Technology

UNIVERSITI TEKNIKAL MALAYSIA MELAKA

2017
DECLARATION

I hereby declare that this thesis entitled “Integrated Health Information Systems Framework in Post Natal Care for Modern and Traditional Malay Medicine” is the result of my own research except as cited in the references. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any other degrees.

Signature : ............................
Name : Raja Rina bt Raja Ikram
Date : .................................
APPROVAL

I hereby declare that I have read this thesis and in my opinion this thesis is sufficient in terms of scope and quality for the award of Doctor of Philosophy.

Signature : ...........................................
Supervisor Name : Prof. Dr Mohd Khanapi Abd Ghani
Date : -------------------------------
DEDICATION

To my beloved family who has encouraged me from day one, particularly my husband, Yasser Ariff who has assisted and provided me with a strong support system and environment to conduct my research and complete my thesis writing. Thank you for the encouragement and patience. My children, Zahratul Husna, Muhammad Ammar and Nur Izzah who has endured me during this period. Also I would like to thank my supervisors, particularly Prof. Dr. Mohd Khanapi bin Abd Ghani, BIOCORE team members and lecturers, laboratory friends who have together supported each other throughout this period. I will always appreciate the friendship and guidance received.
ABSTRACT

The overall aim of this research is to produce an integrated health information systems framework for Traditional Malay Medicine (TMM) and modern medicine in the field of postnatal care. A qualitative study based on grounded theory was conducted via healthcare experts in the field of modern medicine, Traditional Malay Medicine, and information technology (IT) subject matter experts. This research examined health information systems applications in modern and traditional medicine systems, provide an overview of TMM services in Malaysia and critically analyse the existing electronic health records structures and interoperability standards available. A conceptual framework was initially proposed from the literature review and analysis of interviews of the current framework. This research also investigated the critical data attributes required for Traditional Malay Medicine in postnatal care. A set of critical data attributes was developed and proposed from the analysis of results of the structured interviews. An information model was then developed from the set of critical data attributes. A common TMM data attributes in postnatal care may assist in making the proposed framework more flexible and interoperable, particularly when applied with relevant healthcare interoperability standards. The conceptual framework was then validated via healthcare practitioners and IT industry experts. A prototype system of electronic health record was also examined by the respondents to validate the proposed conceptual framework via exploratory prototyping. Consequently, the validation findings was analysed and new themes that emerged from the findings was highlighted to be included in the revised framework. A revised integrated health information systems framework proposed included health record information, interoperability standards, training, support, awareness, separation of authority, accreditation, regulation and enforcement, and adoption incentives. This research may significantly contribute to four main audiences – software developers, healthcare providers, Malay medicine practitioners, and Malay confinement users. Malay women who are the main users of postnatal treatment shall benefit from information availability to compare services delivered by providers. Healthcare providers shall benefit from the standardization of information exchange with other healthcare providers. Software developers may use this study to assist them in developing healthcare related applications in the postnatal domain, particularly in the design of a generic and extensible information model.
ABSTRAK

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I would like to thank my husband, mother and children who has supported me throughout my study duration. Thanks also to my supervisors who has guided me throughout my PhD journey. I would like to also thank friends who have supported and provided ideas on improving my research. I would also like to thank UTeM for providing financial assistance in this research under the Fellowship Scheme. Finally, I would like to thank all who was directly or indirectly involved in this research.
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