**Development of Web-based Service System for Exploring the Factor Associated with Complication in Pregnancy and Newborn**

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**Abstract**

**Keywords** : Maternal and Newborn health; Web-based services; LRA

**Introduction**

Nowadays, in many kind of research such as science, economic, medical or health science is often associated with large dataset. And in-dept information of each datasets are difference depend on type, objective and time of data collection. However, using the large and complex dataset to benefit must do by experts that have more knowledge, experience and most understand of structure, data pattern and meaning of each variables in database. If the user not understand the data, the analysis will give the incorrect result or make miss understand result to who gather that information. This limitation caused problems for common or non-export user who may not able to access or understand the dataset. Therefore using the easy understanding tools and appropriate visualization can help to make research data more widely accessible.

SIMANH is a web-based system under “Improving Health System Response through Epidemiological Surveillance in Improving Maternal and Newborn Health and Survival : Field Testing in Thailand” project

In year 2013, Epidemiology Unit, Faculty of Medicine, Prince of Songkla University have provide

Big data is a very large volume of data and it has emerged as a widely recognized trend. It is difficult to analyze and transform these data to be useful information. Therefore, to analyze large data requires a machine with the high performance of reading, memorizing and computing to get accurate results.

**Material and Methods**

Proposal of this study was approved by the Institute Ethical Committee of Faculty of Medicine, Prince of Songkla University. Permission to use secondary data from “Improving Health System Response through Epidemiological Surveillance in Improving Maternal and Newborn Health and Survival : Field Testing in Thailand (SIMANH)” project.

**System analysis and design**

***Group of users***

There are two groups of user 1) Person who in expert level on Maternal and newborn epidemiological and statistician who will define analysis rule and knowledge backup for analysis. 2) Person who not expertise in statistic for assessment satisfaction of this system.

***System architecture design***

This web-based service system

***Selected development tools***

… tools and database

***Information processing & Algorithm***

The information processing theory states the process of transforming data into information as shown in Figure ...

Inputs: There are three main data inputs. Firstly, Selected factor and outcome from Maternal and Newborn data was exported from SIMANH project. Secondly, Selected factors and selected LRA method from user. Thirdly, Rules and knowledge conditions from maternal and newborn epidemiological expert that help data analysis is more accurate.

Process: This web-based service have

Output:

Control: User can re-analysis of outcome by choose and un-choose on list of factors. Moreover, user can undo analysis to previous process by selected on history transection.

***Functional design***

The system consists of two main functions: (1) a rule and knowledge base support system for expert, (2) a data analysis and visualization for explore the factor associated with the incidence of the complication in pregnancy and newborn.

Rule and knowledge base support system as shows in Figure … shows list of rules and conditions which use for improvement of accurate of data analysis from non-expert users level. Moreover.

However, every users must be register to this service for security of user privacy and level of use. After registered, user as expert level can create project and choose dataset to be prototype of data analysis. Then expert must be define rules and limitation of analysis to be an knowledge support for user which not export of maternal and newborn health research.

***Data security technique***

**Experimental Design and Testing**

This service has been verified in set of experimental test by 34 participants: a expert in maternal and newborn epidemiological, three of statistician and thirty of residents or medical doctors. All of participants will get the link to access the system and use this analysis service over web browser on their mobile or personal computer. On the completion of the experimental test, they must complete the survey for assessment of system usability, level of information gathering and satisfaction level.

**Outcome Measure and Data Analysis**

**Result**

**Conclusion**

**Acknowledgement**

**References**