Functional Analysis of Health Information System in Public Health Centers Focusing on Health Business Programs

Eun-Jung Oh[a], *Kyung-Hee Park*[a], *Jin-Sun Kim*[a] *Sun-Hee Cho*[a,b],
Sung-Hee Park[a, b] *Jong-Min Kim*[c], *Jeong-Wook Seo*[d]
a Center for Interoperable EHR, Korea
b Seoul National University College of Nursing, Korea
c Department of Neurology, Seoul National University College of Medicine, Korea
d Department of Pathology, Seoul National University College of Medicine, Korea

Abstract

- The purpose of this study
  - is to analyze the functionalities of Health Information System in Public Health Centers focused on Health Business Program.
  - Field research was performed in accordance with the business guidelines of the Ministry of Health and Welfare. After analyzing the users' requirement and the functionalities of the system, we suggest a model of functionalities for interoperable EHR system.
  - This will help to promote application of health information system and to improve efficiency of Public Health Centers.

Methods (1)

- There were many Health Business Programs in Public Health Centers.
  - To analyze function, we had to choose several Health Business Programs, which were considered as a important business and each had different work processes.

- Nine Health Business Programs which recognized as key Health Business Programs in Public Health Care were selected.

Methods (2)

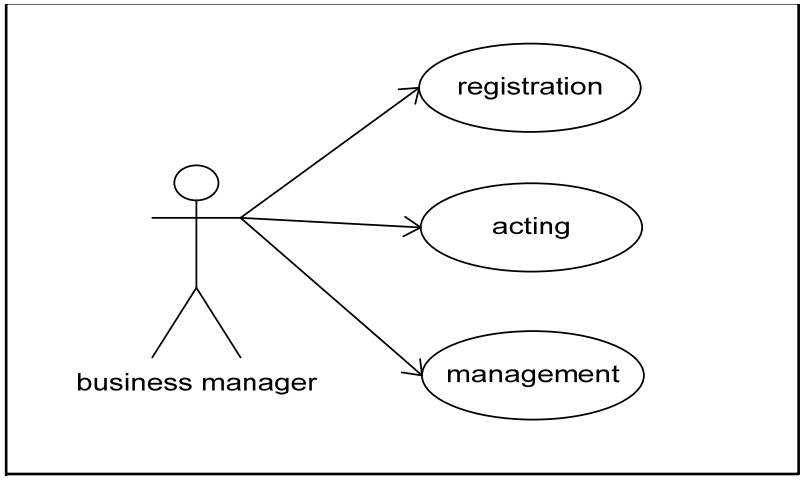
- Then, they have classified into following three categories:
  - The First includes the Health Business Program which was managed by the local Health Information System.
  - Second category includes the Health Business Program which was not managed by the local Health Information System but was managed by web system in common. Consequently, the personnel in charge of Health Business Program can't manage the cases by using their own Health Information System.
  - Third category includes the Health Business Program has no Health Information System, so it was performed manually.

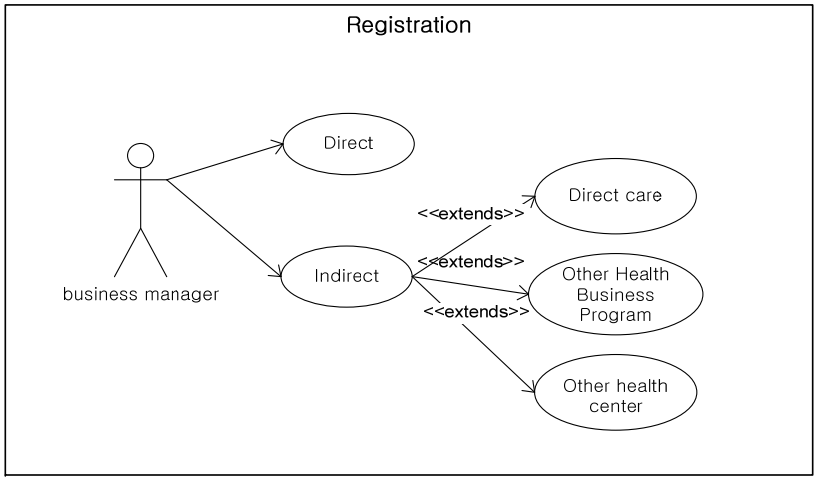
Methods (2)

- Analysis of the work process
  - Questionnaires and field interview survey were conducted at six Public Health Centers in Korea. And people in charge of each health business program named business manager were interviewed. After their work processes were inspected carefully, the functions of health information system and works performed manually using MS Excel or Word were investigated.
  - To show the functionalities, Unified Modeling Language (UML) was used, which showed the work process functionally.
- Analysis the system of health business programs
  - The functions of business process of Health Information System that the manager use were analyzed. Functions were categorized into following three: mega process, major process and sub process.

Results(1)

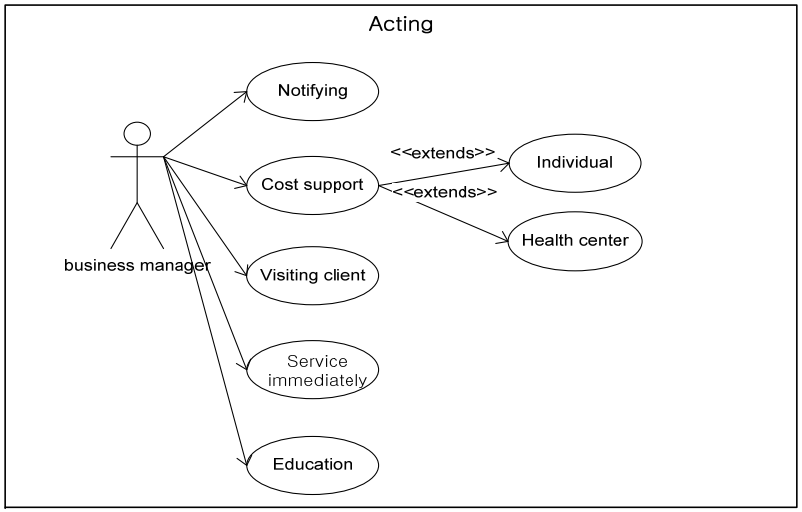
- Analysis the work process

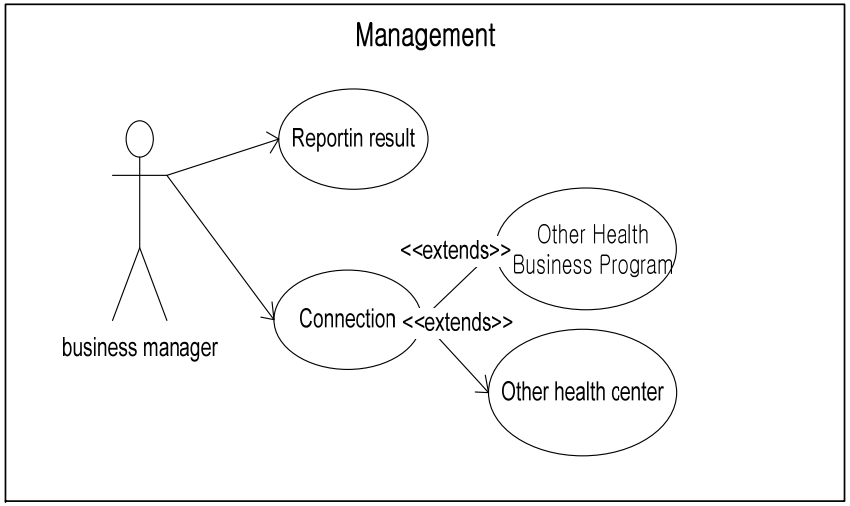




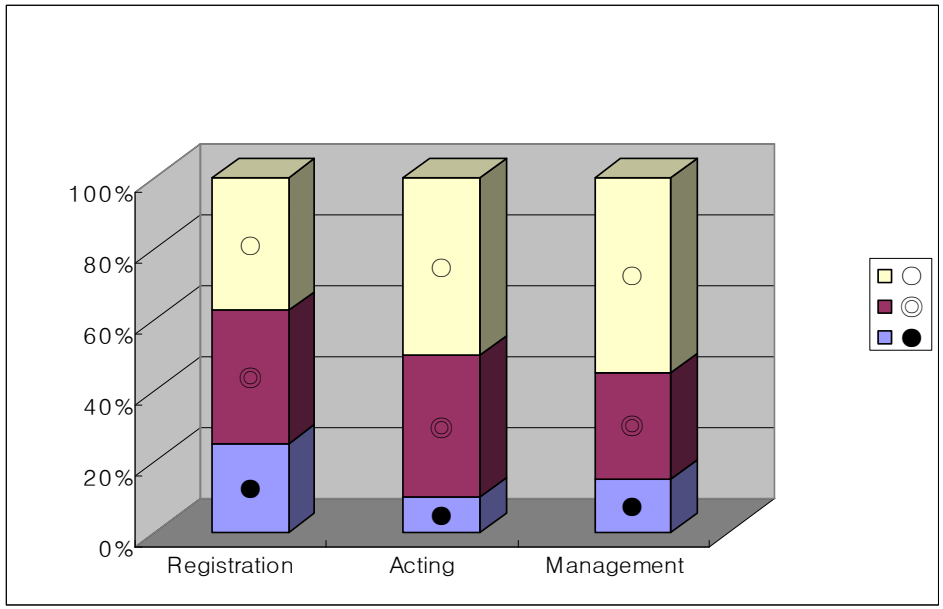
Results(2)

- Analysis the work process





Results(3)



Rate of functional using the Health Information System
(Sub process level)

Conclusion(1)

- Health business programs in public health center are recognized recently as essential activity of information system in Community Health. But actual condition can not support the effective management because there is little information system developed efficiently. From now on, establishing a health information system will be demanded for EHR system implementation.

- Health Information System offers an important infrastructure of efficient delivery and use of healthcare services. To develop the information system, it is important to develop a strategy covering the scope of work processes, public and private activities and adequate use of resources.

- So, in this study, we analyzed the function of Health Information System in Public Health Centers focused on Health Business Programs, which are recognized some core businesses in Public Health Centers.

Conclusion(2)

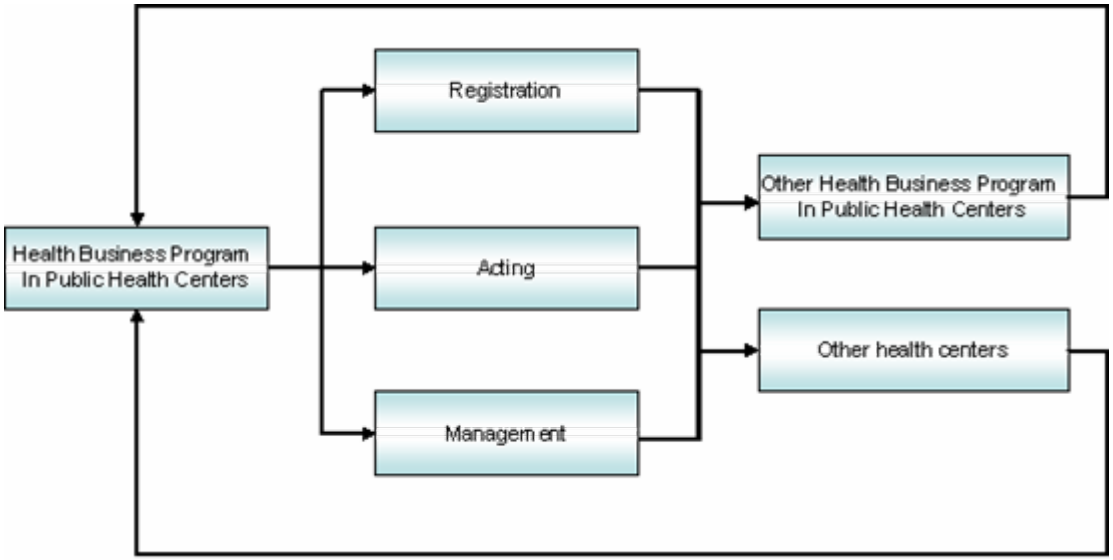
- In Public Health Centers, there are many different Health Business Programs. The Health Information System that supports the Health Business Programs was not integrated into a interoperable EHR system, but it has each Health Information System or has no Health Information System. This is why the functional analysis of Health Information System is significant.

- We showed that it lacks for interoperability on relations with the Systems of other Health Business Programs and the Systems in other health centers.

Conclusions(3)

- For the EHR functionality, health information systems should include functions we suggested. The model for interoperable EHR system will be derived.(Figure 6)

- *Figure 6. Model for interoperable EHR system in public health programs*



Conclusion(4)

- Electronic Health Record (EHR) systems need to offer a flexible framework for recording the consultation process, and accommodate the individuality of the clinician.[5]

- Health Information System should be developed reflecting the end users' requirements.

- Our study could be helpful to engineers who develop Health Information System , so they could have a good understanding of medical domain. And that can help to reflect the users' requirements. Furthermore, the Health Information System would be adopted various Health Business Programs. Eventually these make increasing the efficiency of the user's business and make sure the implementation of interoperable Electronic Health Record System.