Improvement of Patients' Privacy and Security in Seoul National University Hospital EMR system

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Abstract and Objective

As the EMR (Electronic Medical Record) system has been utilized, privacy and security of patient information has been highlighted as one of the most important issues in the EMR system. Therefore, Seoul National University Hospital (SNUH) surveyed current weak points in need of improvement in the SNUH EMR system, and made improvements to EMR in four aspects, including medical records access control, hospitalization privacy, privacy & security guidelines, and user policies. Consequently, SNUH received ISO 27001 information security management system certification for its EMR system.

Keywords:

Patient data privacy, Data security

Introduction

Because of its usefulness, EMR has become a worldwide information system in the health care setting. However, its use requires careful protection and use of patient information. As the first hospital in South Korea using a complete EMR system, Seoul National University Medical Center has tried to establish standards for protection of patient information.

As a part of these efforts, this study aimed to identify the vulnerability of the current EMR system regarding security of patient information, and to improve weaknesses.

This study paid attention to the following; (1) Patient information that should be released only to the patient's assigned medical staff can be exposed to any medical staff and (2) the patient's personal identification number is shown on the screen.

The study developed standards for protection of patient information and improved the environment of the patient information protection system by presenting methods for effectively limiting exposure of patient information to unauthorized users and for preventing exposure of the patient personal identification number.

Objectives include the following: (1) Establishing plans to control access to medical records based on certain rules (2) Establishing plans on how to protect admission related information (3) Establishing standards for protection of information and its application and complements (4) In order to protect information, there are five plans for safe use of EMR by authorized users. Improvements have been made since February 2009, and will continue until November 2009. Plans are being finalized as followed Table 1.

Table 1-Core tasks for privacy & security

	Core tasks
Plans to control access of the medical records	Develop sub-main access log
	Set limited access for the whole EMR
	Create EMR Administrator
	Establish EMR for Non-authorized EMR user
	Application of output log from the medical records screen
Standards for protection of patient information	Controlling exposure of Personal identification number on the screen
	Development of standards for protection of patient information
Preventing exposure of the patient's admission information	Development and application of protecting confidentiality of the admission of the patient
	Development of software blocking access to EMR
For improvement plans for EMR User	Improving EMR access code policy and its application
	Password setup for non-assigned medical staffs
	Providing education for protection of the patient information for EMR users

Results

As a result of the above efforts, in June 2009, Seoul National University Medical Center became the world's first hospital to acquire ISO27001 international security standards for its entire EMR system.

Conclusions

There are several issues for the future; these include monitoring of issuance and use of the certificate, improving 'copy and paste' issues of the EMR record, improving the access permission window, and software development. This hospital will have to improve the health care system by promoting protec-

tion of patient information, through continuous improvement
and system updates.