

# A Fine-grained Access Control Technique to Protect Sensitive Healthcare Data in Emergency Cases with Dynamic Data Security Policies

[Theo anh thì tiêu đề hơi dài]

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Abstract. TBD

Keywords: access control, healthcare system, break the glass, dynamic policy, rewriting request, policy evaluation

[Góp ý chung]

- Nên đi thẳng vào vấn đề, ko nên giải thích.
- Tránh dùng những từ đại loại như: because of, difficult, or là những câu như: mình hỏi rồi tự mình trả lời.
- [E tham khảo mấy đoạn a gợi ý như bên dưới]
- [A bận quá nên không đọc và góp ý cho em nhiều hơn]

## 1 Introduction

Because of the sharp increase on Internet, sensor networks, distributed system, Internet of Things and so forth, a number of traditional healthcare strategies has been becoming online healthcare systems service.

[Nên đề cập thẳng vào vấn đề]

As sensor networks, distributed system, and Internet of Things (IoT) are the physical endpoints of a health care application, a number of traditional healthcare strategies has been becoming online healthcare systems service.

In fact, there are more and more global healthcare organizations that make change of their data into Electronic Patient Health Records (EPHR).

[Nên ngắn gọn, rõ ràng, không nên dùng more and more, mình đề số nhiều là ok rồi]

In fact, global healthcare organizations have changed of their data into Electronic Patient Health Records (EPHR).

In a speech at annual conference of the American Medical Association 2009, US president Barack Obama raised some of the important issues related to medical data [28]. In his speech, he mentioned that all the medical information should be stored securely in a private medical record so that "patient information can be tracked from one doctor to another doctor, even if patient change one hospital to another one, and even if patient have to see a number of different specialists."

[Nên ngắn gọn và đề cập thẳng vào vấn đề]

In his speech at the American Medical Association 2009, Barack Obama mentioned that all the medical information should be stored securely in a private medical record [28]. Accordingly, patient information can be tracked from multiple doctors, even if patient has changed his/her hospital and specialists.

Actually, it seems an easy work; however, clinical institutions are dealing with a great number of difficulties.

[Không nên dùng những câu như trên]

What is considerably needed is the interaction among patients, doctors, insurance companies and pharmaceutical ones supported by healthcare systems. The sensitive nature of the information managed by these systems requires the balance between two contrasting needs: demands for data to ensure the highest quality to the patients "availability" and for sensitive data security (chronic diseases, mental health issues, psychiatric care, sexual behavior, fertility issues, abortion status, and HIV status). Therefore, the core concern of the management systems is to prevent sensitive data from unauthorized access. Access control (AC), a primary type of mechanism is being applied by these healthcare systems into protecting the data. In the meantime, the traditional access control models is rigid, so it is difficult to apply them to the medical environment. On the other hand, it was assumed that these security system policies have to be. Nevertheless, one of the most specific unbroken requests of medical data is "nothing interferes with the delivery of care" [12], with restricted access control would likely be ignored in emergency situations or other similar exceptions. For example, in urgent ones, a nurse can request (and must be authorized) access to the data, which "normal" conditions she cannot view. This phenomenon is known as "break the glass" (BTG).

[Viết lại như sau]

However, the interaction among patients, doctors, insurance companies, and pharmaceutical ones supported by healthcare systems are challenging problems. Since the sensitive nature of the information managed by health care requires the balance between two contrasting needs: demands for data to ensure the highest quality to the patients "availability" and for sensitive data security (chronic diseases, mental health issues, psychiatric care, sexual behavior, fertility issues, abortion status, and HIV status). Therefore, the core concern of the management systems is to prevent sensitive data from unauthorized access. According to that, access control (AC), a primary type of mechanism, is being applied by healthcare systems to protect the data. However, the traditional access control models are rigid, so it is challenging to apply them to the medical environment. On the other hand, it was assumed that these security system policies have to be. Nevertheless, one of the most specific unbroken requests of medical data is "nothing interferes with the delivery of care" [12], with restricted access control would likely be ignored in emergency situations or other similar exceptions. For instance, in urgent ones, a nurse can request (and must be authorized) access to the data, which "normal" conditions she cannot view. This phenomenon is known as "break the glass" (BTG).