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BIOMETRICS IN HEALTHCARE

PATIENT IDENTIFICATION & DATA PROTECTION

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OFFICE OF MANAGEMENT AND BUDGET (OMB)
Executive Office of the President of the United States (EOP)

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INTRODUCTION

In the healthcare industry, the cases of wrong medication given to wrong patients or patient records getting mixed up are not uncommon. Proper healthcare management is extremely essential as it deals with the health and lives of individuals and any mistake can cause irreversible damage. It could literally mean the difference between life and death. The healthcare industry also has to deal with huge expenditures worth billions arising from various causes such as identity duplication, medical thefts and false insurance claims. Thus a foolproof system is needed which can provide a high amount of accuracy, security and reliability. This has led to the emergence of biometrics in the healthcare industry. Biometrics in healthcare systems is primarily used for access control, patient identification, workforce management and storing of patient records.

Biometric devices are capable of capturing the unique physiological or behavioural traits of an individual such as fingerprint, retina scan or facial image and use these unique features to identify the individual. As these unique traits are part of the individual, biometrics is the most reliable form of authentication. It ensures that the individuals are actually who they claim to be and they are authorised to access the healthcare information systems.

In a report published by the Office of Management and Budget and other federal agencies, it is estimated that improper welfare payments and fraud accounted for 10.1% of all the federal welfare payments and totalled a massive $71.5 dollars in 2015. The most important factor contributing to this enormous loss is the lack of a proper identification system which can help multiple agencies adequately verify user information. Thus welfare systems need a strong identification method such as biometrics which can help them maintain the security and integrity of their welfare programs.

WHAT ARE THE FACTORS DRIVING THE ADOPTION OF BIOMETRICS IN HEALTHCARE AND WELFARE SYSTEMS?

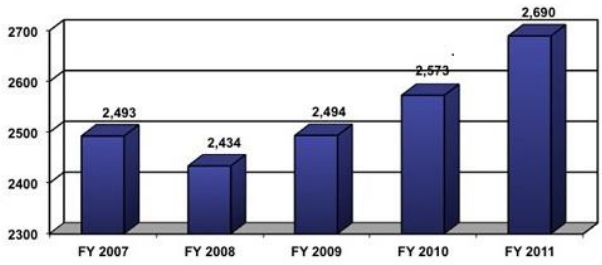

Figure 1: Healthcare Fraud Pending Cases (Source: FBI)

According to Biometrics Research Group, Inc. the global biometrics healthcare market is expected to reach US$5 billion by 2020. There are many factors which are leading to the rapid adoption of biometric technology in healthcare and welfare systems. One of the primary factors is the compelling need to tackle the increasing number of medical frauds as well as to increase the administrative efficiency by improving patient privacy, monitoring and healthcare safety. Healthcare and welfare information pertaining to individuals are very valuable and sensitive. This information needs to be well protected while at the same being easily accessible to the authorised individuals.

The physicians should be able to access patient data easily because they are always hard pressed for time or in the case of an emergency. Also, identifying patients correctly

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is imperative to delivering the right medical care to the right patient and to make sure that patient records are updated and accurate.

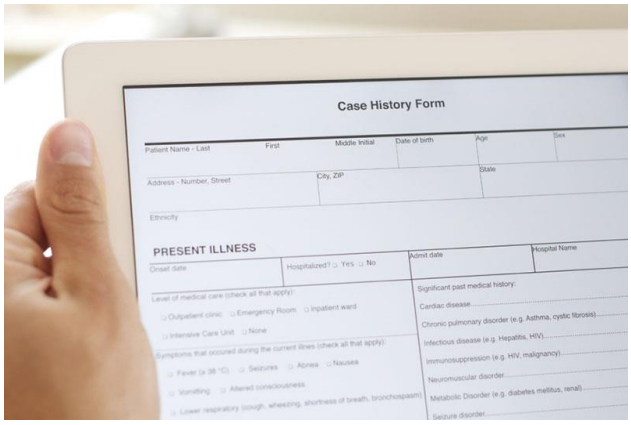

Image 1: Access to Patient Record

Prior to biometrics implementation, citizens qualifying for social welfare were conceived based on their socio-economic status in addition to other categories such as gender, race and disability. But this system is highly vulnerable as evident from the enormous amounts of money lost by the government in improper welfare payments. The payments made in welfare frauds are much greater than the entire budgets allocated for the different welfare programs.

Improper payments occur when the funds are paid to the wrong individual or an incorrect amount of funds is received by the right individual. The use of biometric technologies is aimed to reduce improper welfare payments by identifying the recipient accurately and then allocating the funds. Biometric identification helps to establish the identity of individuals who actually qualify for welfare thereby maintaining the integrity of government welfare programs and restoring the trust of citizens in the government.

The HIPAA (Health Insurance Portability and Accountability Act) that mandates protecting patient privacy and confidentiality of patient medical information is also a key factor in the growth of healthcare biometric systems. To ensure compliance with the standards and procedures of the HIPAA, healthcare facilities are keen on deploying biometrics in their healthcare systems.

DEPLOYING BIOMETRICS IN HEALTHCARE SYSTEMS

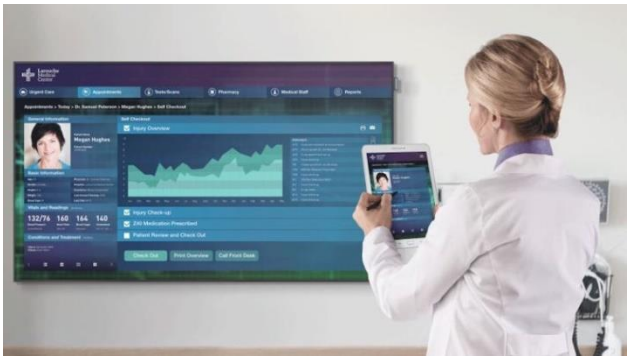

Image 2: Only Authorized Person has Access to Patient Record

Implementing biometrics in healthcare systems helps to improve the administrative efficiency by reducing risks related to inaccurate patient identification. For each individual patient, biometric identification methods accurately ties to the correct care or treatment plans and updated medical records in the healthcare management system. This improves the overall quality of the care provided to patients. Biometrics also helps ensure that only the authorised personnel will have access to patient records.

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Traditional methods such as photo ID cards, passwords and PINs for staff and patient management are vulnerable to card thefts and unauthorised access leading to fraudulent activities. Lengthy and sophisticated passwords are difficult to remember and might lead to a lot of password resets. This ultimately affects the workflow and causes undue stress to the staff and healthcare management. Deploying biometrics can overcome the difficulties associated with passwords and PINs and streamline the process of accessing patient records. It will help reduce the dependence on passwords as the only form of security and authentication. Combining biometrics such as fingerprint with passwords will help to implement a two-factor authentication leading to enhanced security and privacy of patient data.

WHAT ARE THE KEY AREAS OF BIOMETRIC APPLICATION IN THE HEALTHCARE INDUSTRY?

Prevent health care fraud and reduce associated costs: In the U.S economy, health care is one of the most important categories of expenditure. In 2011, the total health care spending in the United States was 17.9 percent of its gross domestic product (GDP) which was the highest in the world. This upward trend continues to grow and is predicted to reach 19.5 percent of GDP by 2017. A lot of the health care expenditure is incurred in dealing with frauds and it is estimated that annual losses are in billions of dollars. The state and federal budgets are always faced with the challenge of reducing health care expenditure without degrading the quality of services.

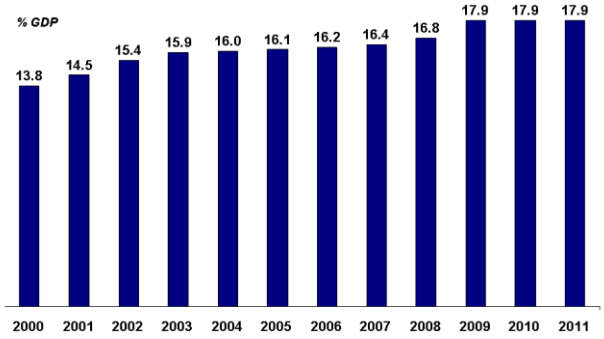

Figure 2: U.S. Healthcare Costs as a Percentage of GDP (Source: Centers for Medicare and Medicaid Services)

Health care fraud occurs when an individual intentionally files or causes someone else to file a dishonest healthcare claim to gain a profit or to get access to medical services illegitimately. One of the most common causes of healthcare fraud is medical identity theft where an individual uses another person's health insurance or identification to obtain medical benefits. Medical theft poses serious threats for both the patients and the healthcare providers. The records of medical theft patients can contain wrong health data and claims which are not theirs and thus their future treatments and healthcare financial limits will be jeopardized. The patient's medical records could be distorted to support fraudulent medical claims which the patient has not actually received.

In the current health care system, there is a lack of patient identity safeguards and fraudsters are taking undue advantage of this situation. Deploying biometric solutions such as fingerprint recognition will ensure accurate identification of patients thereby decreasing the instances of healthcare frauds and medical identity thefts. Thus biometric systems helps to increase the overall effectiveness and efficiency of healthcare systems by reducing costs and

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increasing patient privacy and patient satisfaction due to reduced errors.

Maintain the data integrity of patient records: Biometrics such as fingerprint recognition prevents the sharing of ID cards and patient identity theft. Initially the patient's fingerprint is enrolled into the health care system which is a fast and simple process. The patient's medical record along with his fingerprints are then stored on a smart card. For subsequent visits to the facility, the patient is identified using his fingerprints at the healthcare provider's location thereby eliminating any possibility of theft. Hence biometrics truly protects patient data and eliminates the creation of duplicate medical records.

The integration of biometrics with existing electronic healthcare systems increases the standards of data integrity by ensuring that the right patient is linked to the right record. Thus the right medical care can be provided to the right patient with no possibility of duplicates or overlays. For healthcare interoperability and secured data exchange, data integrity is vital and biometrics can helps to achieve it.

The Health Insurance Portability and Accountability Act mandates record keeping every time a patient's electronic health record is accessed. Medical professionals can achieve this easily with biometric fingerprint solution as fingerprints are automatically and digitally recorded each time they are used to access a medical record.

Improve the workflow of healthcare systems: The key challenge that most healthcare organizations face is the managing of security infrastructure and maintenance of patient records. Traditional methods such as cards, tokens, passwords and PINs have failed to provide the optimum security solution and also possess the inherent risk of being stolen or shared. Healthcare officials have found it increasingly difficult to accurately track access to its sensitive networks due to awkward username and password combinations. There have been numerous cases where medical personnel would stay logged in simply to avoid having to type a cumbersome password. Thus it becomes extremely difficult to track who accessed the information. Moreover, the recurring cost and resources associated with maintaining of cards or resetting of lost or forgotten passwords turned out to be significant with time.

Integrating biometric fingerprint recognition into Electronic Health Record (EHR) systems eliminated the need for passwords or PINs and ensures authorised access to confidential patient records. It also creates an audit trail of log in and log out time for comparison against the medical records accessed. Hospital employees can now conveniently login with a simple swipe of a finger. Also, the fingerprint readers on computers can be wheeled into patient rooms which provide a lot of flexibility to the nurses. They do not need to type in their username and password multiple times and can continue with their duties throughout the day. Biometrics also eliminates the problem of buddy punching as fingerprint authentication replaces cards and passwords. Thus deploying biometrics leads to efficient workforce management and also improves the workflow in healthcare organizations.

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Patient identification: A patient typically presents some form of identification to receive medical services within the healthcare system. But traditional identification methods such as cards or passwords can be lost or forgotten leading to delayed services. Fingerprint recognition can overcome such issues and facilitate patient admission and speedy access to previous medical records of the patient. In cases where the patient is unconscious or impaired, fingerprint recognition increases the ability to correctly authenticate the patient.

Fingerprint enabled patient identity solutions can be used throughout a hospital at various points such as pre-op, medication dispensing and outpatient services. Any document processing also becomes faster by allowing users to sign electronically with their fingerprints. The patient's fingerprint now becomes his password and hence it becomes extremely convenient for the patient to authenticate himself.

INTEGRATING FINGERPRINT RECOGNITION IN HEALTHCARE AND WELFARE SYSTEMS

Fingerprint recognition can be integrated rapidly into healthcare and welfare systems with a biometric solution called Touch N Go. It is a developer friendly biometric solution that allows fingerprint recognition to be integrated easily and quickly into healthcare systems with no prior experience in fingerprint technology. Due to the unique methodology of Touch N Go, developers can integrate fingerprint biometrics into any healthcare system with just four lines of code.

With Touch N Go biometric solution, healthcare organizations can take advantage of a solid identity management infrastructure and the highest level of security for their applications. Touch N Go is flexible with support for multiple programming languages such as C, Java, etc. and programmers also have access to the inbuilt applications and source code in a variety of languages. It is affordable and a high performing solution with support for a variety of fingerprint readers. With Touch N Go, a healthcare and welfare system will be up and running in no time equipped with fingerprint recognition technology.

CONCLUSION

The rapid advancements in the field of biometric technology along with the decreasing complexity and cost of biometric devices are the prominent factors fuelling the adoption of biometrics in healthcare and welfare systems. In this article, we have discussed the various benefits of implementing biometric fingerprint recognition in current healthcare systems.

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Danny Thakkar is the CEO and Co-Founder of Bayometric, one of the leading biometric solution providers in the world. He has been in the Biometric Industry for 10+ years and has extensive experience across public and private sector verticals. Currently, he is chief evangelist for Touch N Go.

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